Mass & Force

Science, Physical Sciences

Year 7

Content Description

Investigate and represent balanced and unbalanced forces, including gravitational force, acting on objects, and relate changes in an object's motion to its mass and the magnitude and direction of forces acting on it

(AC9S7U04)

VR Learning Activities

Listening and Understanding: Students listen to information and explanations about mass, force, and how they interact to affect motion. They build understanding of how more massive objects require greater force to move, and how these principles apply in real and virtual environments.

Interactive Experimentation: Students use a virtual launcher to test how objects of different mass respond to varying amounts of force. They observe changes in acceleration and distance travelled based on the mass of each object and the applied force.

Exploring the Effects of Force: Students adjust the strength and direction of force in a virtual simulation and observe how it affects objects of different mass. They analyse how increased force changes motion and how unbalanced forces create movement.

Data Collection and Analysis: Students record data such as force applied, object mass, and distance travelled. They analyse this data to understand how increasing or decreasing either mass or force impacts an object's motion.

Scientific Inquiry: Students are challenged with guided questions that require them to test predictions, collect and interpret results, and draw conclusions about the relationship between mass, force, and motion using evidence from their experiments.

Key Learning Areas

Critical and Creative Thinking: Students investigate how mass influences the amount of force needed to change an object's motion. They manipulate variables in a virtual environment, predict outcomes, and reflect on how different mass and force combinations affect motion in both simulated and real-world contexts.

Scientific Inquiry: Students develop hypotheses, conduct experiments, and collect data to explore how mass and force interact. They observe the effects of applying balanced and unbalanced forces to objects of varying mass and use evidence to explain resulting motion.

Digital Literacy: Students engage with VR tools to apply forces to objects of different masses. They adjust variables such as mass and direction of force, observe immediate changes in motion, and analyze digital data to reinforce scientific concepts.

Numeracy: Students measure variables such as mass, force, and distance traveled. They calculate and compare values, recognize patterns in data, and use mathematical reasoning to draw conclusions about how mass affects motion under different force conditions.

Personal and Social Capability: Students work collaboratively to plan and conduct investigations, share observations, and respectfully discuss interpretations of results. They reflect on how mass and force concepts apply to everyday experiences and technology.