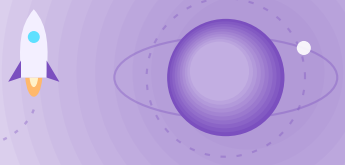
STANDARDS ALIGNMENT

NGSS performance expectations practiced in Launchpad



FREE CLASSROOM RESOURCE

Lessons are built alongside NGSS core ideas in forces, interactions and orbital gravity. “Practice” lessons ask students to do the standard’s core reasoning; “enrichment” lessons extend it. This is an alignment aid for planning, not a certification.

3-PS2-1

Plan and conduct an investigation of the effects of balanced and unbalanced forces on an object’s motion.

Lessons: E-01 Push & Pull, E-03 Air Resistance & Parachutes

5-PS2-1

Support an argument that the gravitational force exerted by Earth on objects is directed down.

Lessons: E-02 Gravity on Other Worlds

MS-PS2-1

Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.

Lessons: T2-01 Exhaust Exchange, T5-05 Satellite Rescue and Dock

MS-PS2-2

Plan an investigation showing that an object’s change in motion depends on the sum of the forces on it and its mass.

Lessons: T1-01 Force Cart in Vacuum, T1-02 Rocket Anatomy Relay, T2-02 The Fuel Trap, T3-01 Falling Speed Lab, M-01 Newton's Three Laws

MS-PS2-4

Construct an argument that gravitational interactions are attractive and depend on the masses of the interacting objects.

Lessons: M-02 Mass vs Weight

MS-ESS1-2

Describe the role of gravity in the motions within galaxies and the solar system.

Lessons: T4-01 Miss the Ground

HS-PS2-1

Analyze data to support the claim that Newton’s second law describes the mathematical relationship among force, mass and acceleration.

Lessons: T1-01 Force Cart in Vacuum, T2-04 Nozzle Altitude Match, T3-01 Falling Speed Lab

HS-PS2-2

Use mathematical representations to support the claim that total momentum of a system is conserved when there is no net outside force.

Lessons: T2-01 Exhaust Exchange, T5-05 Satellite Rescue and Dock

HS-PS2-4

Use mathematical representations of Newton’s Law of Gravitation to describe and predict gravitational forces between objects.

Lessons: T4-05 Gravity Still Works Here

HS-ESS1-4

Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

Lessons: T4-01 Miss the Ground, T4-02 Circularize or Burn, T4-03 Equal-Area Courier, T5-01 Two-Burn Mail