

Worksheet Forces

Consider a model rocket launched skyward as shown below. Shade in the boxes to indicate how the forces of thrust, drag and gravity change along the rocket's flight path.

The diagram illustrates the forces acting on a rocket at seven different stages of its flight. Each stage is represented by a rocket illustration and a box with three vertical columns for shading: Gravity, Thrust, and Drag.

- Ready for launch:** The rocket is on the ground. Gravity is at its maximum, Thrust is zero, and Drag is zero.
- Engines are at full throttle:** The rocket is accelerating skyward. Thrust is at its maximum, Gravity is constant, and Drag is zero.
- Fuel is spent:** The rocket is slowing down as it reaches peak altitude. Thrust is zero, Gravity is constant, and Drag is zero.
- Apex of flight:** The rocket is momentarily stationary. Gravity is at its maximum, Thrust is zero, and Drag is zero.
- On the way down:** The rocket is falling. Gravity is at its maximum, Thrust is zero, and Drag is zero.
- Parachute deploys:** The parachute is deployed, increasing drag. Gravity is constant, Thrust is zero, and Drag is at its maximum.
- Touch down:** The rocket is on the ground. Gravity is at its maximum, Thrust is zero, and Drag is zero.