

Newton's Laws and A Rocket Launch

Newton's Laws of Motion:

- 1 An object moves at a constant speed in the same direction until an unbalanced force acts on it
- 2 Net force = mass x acceleration ($F_{\text{net}} = m a$)
- 3 Every action force has an equal but opposite reaction force

For each part of the rocket launch described below, decide which of Newton's Laws (1 2 or 3) is linked to it:

- A The rocket remains at rest when on the launchpad before the main engines are fired
- B The astronauts feel pushed back into their seats during the launch
- C The gases from the engine are pushed out of the rocket while the rocket is pushed upwards
- D The rocket speeds up once the main engines are fired
- E The mass of the rocket decreases as it burns fuel, and it accelerates faster.
- F The rocket orbits the Earth with a constant speed once in orbit

