Newton's Second Law Learning Sequence Employing Levels of Inquiry (2 pages)

Background Experience(s)	Discovery Learning	Interactive Demonstration
• Students complete a graphing activity relating force to mass (i.e., $F = km$ where $k \equiv g$ turns out to be $9.8N/kg$) Identify *9.8N/kg* as gravitational field strength rather than acceleration due to gravity. • $F = W$ is measured in Newtons; $W = mg$	• What is a Newton? "The weight of a small apple." • Have students hold things to figure out what a Newton is. • Remind students about velocity; no acceleration. Forces opposite and equal. • Use scale to account for results. • Do heavier things fall faster than light things? • Effect of wind resistance – book and paper drop.	"What if…?" Have kids predict what will happen.

Inquiry Lesson	Inquiry Lab	Real-word Applications
Demonstrate equipment use: Practice run for data How would you get…? How to measure force, mass, and acceleration. Balance – picket fence with photogate F=mg; g=9.8m/s^2; g is gravitational field strength best stated as 9.8N/kg.	Collect data Have students discover $F = ma$	$a = \frac{f}{m} = \frac{F}{M}$