

Newton's Second Law of Motion

Notes		ate each Brother
Read pp 94-95 and fill in t	the notes below.	John Const
· Describe/Define:		100
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	in the direction t	The second secon
bigger person p	ushed him/ber	
. The rate the above	person will accelerate aft	er being pushed depends
onand		on doing the pushing
• Larger masses need	force than sm	ıller masses to reach the
same	Torce want state	mer masses to reach the
Newton's second la equation:	w of motion can be expres	sed using the following
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1	F=ma	
Quantity/Variable	Symbol	Unit
force		$N (Newton) = kg \cdot m/s^2$
	m	kgorg
acceleration ·	a	

Practice Calculations

- 1. A motorcycle and its rider have a mass of 270 kg. How much force is needed to accelerate the motorcycle and its rider 4 m/s²?
- 2. What force is needed to accelerate a 0.5 kg soccer ball, at a rate of 3 m/s^2 ?

- 3. How much force will be needed to accelerate a car with a total mass of 1160 kg a rate of 4.5 m/s²?
- 4, A 70 kg swimmer pushes off a pool wall and accelerates through the water at a rate of 3.6 m/s². What force did the swimmer push with?

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5. What force is needed for a dancer to lift his 80 kg partner above his head with an acceleration of 2.5 m/s²?

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