Physics 204A, Spring 01

California State University, Chico

Newton's Third Law

Goals:

- **To test Newton's third law in a few different situations;**
- **To understand the interaction between a small car and a huge truck in a head-on accident.**

Equipment: Computer/Logger Pro/ULI, 2 force sensors with attachments, motion sensor, hanging mass set, cart masses, track system with 2 carts (including 1 plunger cart with magnets removed from side opposite plunger) + two stops, triple-beam balance, level.

Tasks:

- Using two carts and the given equipment, design some situations for which that you predict that the force exerted by cart (A) on cart (B) is equal to the force exerted by cart (B) on cart (A).
- Using two carts and the given equipment, design some situations for which that you predict that the force exerted by cart (A) on cart (B) is greater than the force exerted by cart (B) on cart (A) (or vice versa).
- ✓ **Check your group prediction for each situation with the instructor before starting to take data.**
- Test your predication for each situation using the computer and force sensors.

Results: (written clearly and required to hand in at the end of the lab):

- Description of the situations your group designed.
- Your prediction and experimental result for each situation.
- Explanation of the discrepancies.