Handed Out: _____ Name: _____
Due: _____ Date: _____

Newton's 2nd Law

Physical Science and Technology

Instructions: Please use your own paper on these problems. At the top of your paper, write "Newton's 2nd Law". Use the Five Steps for each of these problems, unless indicated otherwise.

1. A fuzzy chicken is throwing a golf ball into the cat's face. The golf ball has a mass of 0.04 kg, and the chicken accelerates it at a rate of 5.4 m/s/s. What is the size of the overall (or net) force acting on the golf ball?

2. A hairless lion slams into a cart of bricks. The cart of bricks has a mass of 182.44 kg, and the lion causes it to accelerate at a rate of 2.3 m/s/s. What was the size of the overall (net) force acting on the cart of bricks?

3. A rocket is traveling at 7.8 m/s. A hummingbird pushes backwards against the rocket, creating a net backwards force. The rocket continues to travel forwards. In what direction is the rocket accelerating, forwards or backwards? (You do not need to use the Five Steps for this problem).

4. A Chihuahua kicks a soccer ball full of cement. The soccer ball has a mass of 17.8 kg. The Chihuahua kicks it, creating a net force of 18.4 Newtons acting on the soccer ball. How quickly does the soccer ball accelerate?

5. A mouse drops a load of wood on an elephant. The wood strikes the elephant, creating a net force of 478.22 Newtons acting on the elephant, and causes the elephant to accelerate at a rate of 28.3 m/s/s. What is the elephant's mass?

6. A giant orangutan steps on a gorilla's foot. The orangutan has a mass of 102.7 kg and steps on the gorilla's foot, creating a net (overall) force of 1018.2 Newtons. How quickly does the elephant's foot accelerate?

7. A squirrel is flying across the room with a constant velocity of 7.6 m/s. He has a mass of 82.3 kg. He is not accelerating in any direction. What is the size of the net force acting on the squirrel?