Newton's 3rd Law WS

1. If your weight is the force created by gravity on your body, what is the reaction force?

2. If you jump off of a ledge and accelerate toward the Earth, the Earth will accelerate toward you at the same time due to Newton's Third Law. Why don't we see the Earth move in this situation?

3. There is nothing in outer space for rocket exhaust gasses to push against. How then can a rocket accelerate in outer space? (And yes, we do know that they can accelerate in outer space, this is not a trick question!)

4. A friend is arguing Newton's Third Law with you. He states that when a bullet fires from a gun there must be an equal and opposite force backward on the bullet, and that these forces would cancel each other out. Therefore, he says, there is no way a bullet would be able to move, and this means Newton's Third Law doesn't work. How would you be able to enlighten your confused friend?

5. No matter how hard a horse pulls on a cart, the cart must pull back with exactly the same force according to Newton's Third Law. How can a cart pull a horse? (For this question assume that the horse and cart are on level ground.)

6. A bug splatters on a fast-moving car's windshield. How does the force felt by the bug compare to the force felt by the car's windshield? Explain.