

31. Due to Newton's first law of motion, an object will maintain its initial velocity (i.e. motion) until an external force acts on it. When the bus accelerates,

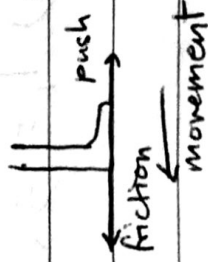
an external motion is acting on, however you have no external force acting on you, meaning that the bus will form underneath your feet whilst you keep still causing the illusion that you are ~~flying~~^{falling} back.

Similarly, when ~~you~~ the bus decelerates, there is no external force acting on you, meaning that you keep travelling whilst the bus stops, giving the illusion that you are falling forwards. When the subway standees face front when the train is moving, this inertia acts directly on their centre of mass, requiring more energy to counteract, Facing the side of the car means that the force acts radial, meaning there is a base to support the force much easier.

32. The force acting on an object accelerates the object in the ~~is~~ that direction.

33. a

34. "Yes, but when you pull the cart, the wheels of the cart also experience this force. The equal and opposite reactionary force to that will be friction that will push the cart along."



or any similar explanation

36. Yes it changes the tension in the wires since the wires droop. This also means that the amount of tension is greater than the weight of the bird.

37. Accelerate the olive and the jar in order to give the olive initial acceleration. Then stop the jar.
- one way -

38. Whiplash

Reasons:

→ Inertia

39. The force that ~~was~~ initially acted upon the arrow keeps it going in a tangential direction to the circle and it moves in a circle due to addition of the gravitational force.

40. You guys could decide this one yourself. Creativity is the bedrock of innovation.

41. In a lift that is moving (accelerating) downwards and then doing the calculations (check the motion ~~to~~ holiday homework)