

Ball on a Table

00:00 Speaker 1: Here is another ball sitting on a table. Is it moving? We can apply a force to the ball and move it to the edge of the table. Then what will happen? Why does the ball fall? What caused the change of motion? The ball falls because a force causes it to move downward. Earlier the wagon and the ball on the ground changed motion because a force was being applied. What force caused the ball to fall from the table to the floor?

00:47 S1: Gravity is an invisible force that pulls masses towards one another. The force of gravity pulls on the ball, making it move toward Earth's surface. Watch again, this time the ball didn't fall to the ground. It stopped before it got there. What caused the change of motion?

01:16 S1: The ball is sitting on the table, gravity is pulling the ball straight down. The table is applying an equally strong force straight upward, so the ball is not moving up, down, or sideways. Now, one end of the table is lifted and the ball starts to roll. The ball's motion changes. What force is causing the ball's motion to change? Because the table is tipped, the table is no longer pushing straight up on the ball, instead it is pushing on the side of the ball. Gravity is making the ball move down but the force applied by the table is changing the direction of the ball's motion. The ball can't go straight down, because the force applied by the table is making the ball change direction.