

# NEWTON'S 3<sup>rd</sup> LAW IS WRONG

## XAVIOUR'S - LAWS OF MOTION

**Abstract:** Wherever the motion takes place, we can find the true reason of that particular motion through my, "Xaviour's Laws of Motion". Xaviour's Laws of Motion are three basic physics laws that I have created to explain how the force determines the motion of an object and the direction of a motion. The purpose of this article is to point out the contradictions and faults in Newton's 3rd Law, and to prove that the Newton's 3<sup>rd</sup> Law of motion is wrong; And introduce my "Xaviour's- Laws of Motion" as a substitute for Newton's 3rd Law of Motion. It says the force accepting motion and the force releasing motion are not same, they are different and they are happens by the different causes. The speciality of Xaviour's laws of motion is can know the direction of the motion from the direction of the force.

**Introduction:** There are many types of motions in nature around us. They are 1.straight line motion, 2.circular motion, 3.uniform motion and 4.non-uniform motion. In these motions we can find out the difference between one motion to another, by the root causes for the motion and the way of the motion that happening. Though anyone motion, that should happen in same way in all the places. One motion can't acts differently in different places. If it acts differently in different places, it can't be the same motion. The reason for why I say this, the examples given to Newton's 3rd law can be seen in such contradictions. Let's take two examples, the movement of the ball that crashes into the wall and the movement of the rocket. These two things are both examples of Newton's third law. The ball that crashes into the wall is runs by the external force acted on it. The rocket is not run by the external force. It runs by releasing the force from itself; the ball runs in the same direction as we put on it, But the rocket runs on the opposite direction it releases; In first example, there should need minimum two objects for make the action and reaction. But in rocket's action, there is only a single object; in the first example, when the ball collides with the wall, they are inter change the forces from one to another. Due to this incident, the action and reaction are happening. But in rocket's action there is no any collide. There are no two things for exchange the force. In this way, which we can say the action and reaction?

So, we can understand that these two examples are completely two different motions. They are not same motion because the way of these motion and the reason for their motion are different. Newton's 3<sup>rd</sup> law says the two different motions as a same motion. It is wrong. Thus, I say Newton's 3rd law is wrong. And I have created three physics laws (Xaviour's- laws of motion) to clarify the contradiction is in the Newton's 3<sup>rd</sup> law and to replace the Newton's 3<sup>rd</sup> law. These laws will be the perfect alternate for Newton's 3<sup>rd</sup> law and clearly explains that what can't be explains by the Newton's 3<sup>rd</sup> law.

### Newton's third law of motion is wrong:

Sir Isaac Newton is an English mathematician, astronomer and physicist. In 1687, he first published his three basic laws of motion in his book Principia Mathematica. These are called as Newton's laws of Motion.

Various philosophers studied the basic ideas of cause of motion. According to Aristotle, a constant external force must be applied continuously to an object in order to keep it moving with uniform velocity. Later this idea was discarded and Galileo gave another idea on the basis of the experiments on an inclined plane. According to him, no force is required to keep an object moving with constant velocity. It is the presence of frictional force that tends to stop moving object, the smaller the frictional force between the object and the surface on which it is moving, the larger the distance it will travel before coming to rest. After Galileo, it was Newton who made a systematic study of motion and extended the ideas of Galileo. Newton formulated the laws concerning the motion of the object. There are three laws of motion. A deep analysis of these laws, lead us to the conclusion that these laws completely define the force. The first law gives the fundamental definition of force; the second law gives the quantitative and dimensional definition of force while the third law explains the nature of the force. Here we are looking only at Newton's 3rd law of motion.

"For every action, there is an equal and opposite reaction ( $F = -F$ )". This is Newton's third law. According to this Law, the first object in the two substances, executes the particular force on the second object. The second object also implements the same force as the opposite direction on the first object. Newton's 3rd Law is called the law of action and reaction. Action and reaction do not act on the same object; it works on different objects. Action and reaction do not cancel each other; it is always said to be a pair. When we sit on a chair, our body exerts a downward force on the chair and the chair exerts an upward force on our body. There are two forces resulting from this interaction: a force on the chair and a force on our body. These two forces are called action and reaction forces. Newton's third law explains the relation between these action forces.

As examples for Newton's 3rd Law of motion, some of the things that are happening in our day to day life are mentioned. They are:

(i) When a bullet is fired from a gun with a certain force (action), there is an equal and opposite force exerted on the gun in the backward direction (reaction).

(ii) When a man jumps from a boat to the shore, the boat moves away from him. The force he exerts on the boat (action) is responsible for its motion and his motion to the shore is due to the force of reaction exerted by the boat on him.

(iii) The swimmer pushes the water in the backward direction with a certain force (action) and the water pushes the swimmer in the forward direction with an equal and opposite force (reaction).

(iv) We will not be able to walk if there were no reaction force. In order to walk, we push our foot against the ground. The Earth in turn exerts an equal and opposite force. This force is inclined to the surface of the Earth. The vertical component of this force balances our weight and the horizontal component enables us to walk forward.

(v) A bird flies by with the help of its wings. The wings of a bird push air downwards (action). In turn, the air reacts by pushing the bird upwards (reaction).

(vi) When a force exerted directly on the wall by pushing the palm of our hand against it (action), the palm is distorted a little because, the wall exerts an equal force on the hand (reaction).

(vii).The propulsion of a Rocket is said to be the most important and interesting examples of Newton's 3rd Law of Motion. The rocket is a system whose mass varies with time. In a rocket, the gases at high temperature and pressure, produced by the combustion of the fuel, are ejected from a nozzle. The reaction of the escaping gases provides the necessary thrust for the launching and flight of the rocket. From the law of conservation of linear momentum, the momentum of the escaping gases must be equal to the momentum gained by the rocket. Consequently, the rocket is propelled in the forward direction opposite to the direction of the jet of escaping gases. Due to the thrust imparted to the rocket, its velocity and acceleration will keep on increasing. The mass of the rocket and the fuel system keeps on decreasing due to the escaping mass of gases.

#### **The contradictions in Newton's 3rd law of motion:**

When we carefully examine Newton's 3rd Law of Motion and its examples mentioned, we can find out many contradictions in it. They are:

1. When the two equal forces are acting at a single point in the opposite direction, there will be no motion. (e.g. All the stable things on the ground). Because of the two equal forces are cancel their self.

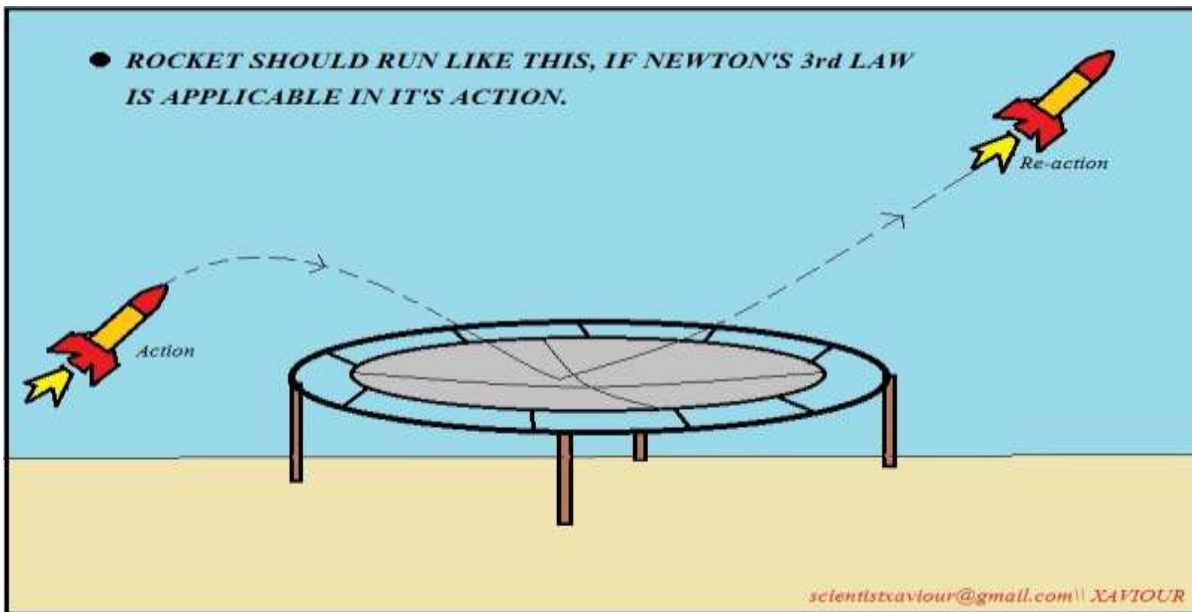
2. Where the places that we consider Newton's 3rd law is in acting, in some of the places, the objects are moving on the same direction of the force; in some of the places, the objects are moving on the opposite direction of the force; and there is no movement in some places. Why this variation?

3. The reaction is not everywhere. Only when the force is blocked by an object, there can be a reaction. If not blocked, there can be no reaction. Newton's third Law of Motion does not explain this.

4. The meaning of the words 'action' and 'force' is not the same thing. In this context, the words "action" and "reaction" are used in the Newton's 3rd law. But, the symbol F is used in its formula ( $F = -F$ ). How is this correct? Symbol 'F' is not represent the action, it represents the force.

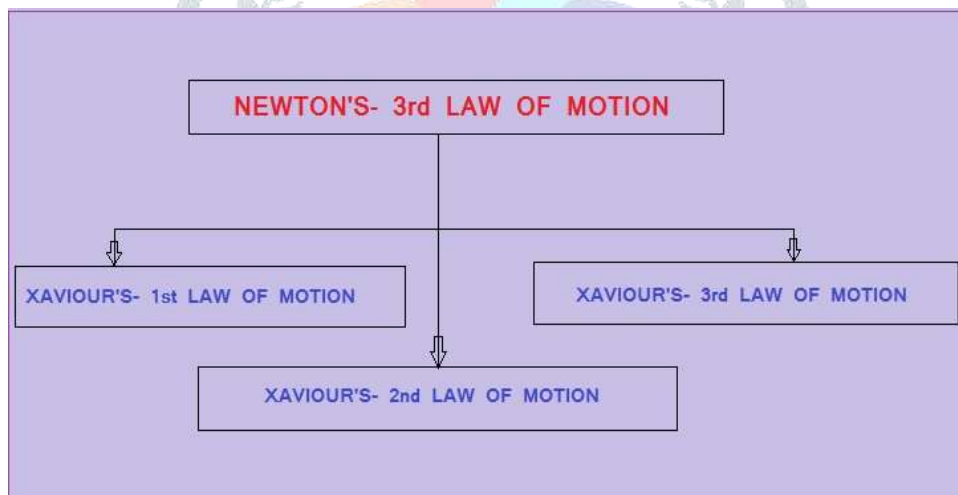
5. The earth revolves the sun. This is an action. Where is the reaction for that? Thinking, eating, sleeping and reading are also actions. Where are reactions for these?

6. If the movement of the rocket is based on Newton's 3rd Law of Motion, it must be the same as in the picture below.



**Xaviour’s Laws of Motion:**

Xaviour’s laws of motion explain how the force determines the motion of an object and the direction of motion; and it is also clear how the direction of motion is depending on the direction of the force. These laws can be understood as the real reason for the kind of motions in the world. In these laws, I mean "Object" as a single thing or a group of things that is firmly bounded. And, for Xaviour’s laws of motion, I have used a little bit of rewritten formulae of the Newton’s Laws of Motion. Thus, between Xaviour’s laws of motion and Newton’s laws of motion, there is no major difference in calculations; there is only a different in concept.



**First law:**

"If force is applied on the object, that object will move in the same direction of the force."

$$F_{oo} = ma$$

( $F_{oo}$  = Force on the object;  $m$  = Mass of the object;  $a$  = Acceleration of the object)

**Second law:**

"If force is released from the object, that object will move in the opposite direction of the force."

$$-F_{bo} = ma$$

i.e,  $F_{bo} = - ma$

(F<sub>bo</sub> = Force by the object; m = Mass of the object; a = Acceleration of the object)

The minus sign (-) indicates the direction of the motion is against the force. This means that the force and the motion are opposite.

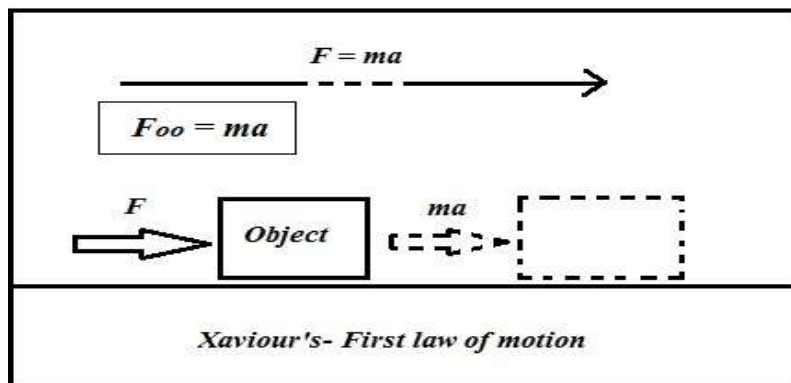
**Third law:**

“When the force is blocked, the equivalent force is in the opposite direction.”

$$F = -F$$

**Description of Xaviour’s first law of motion:**

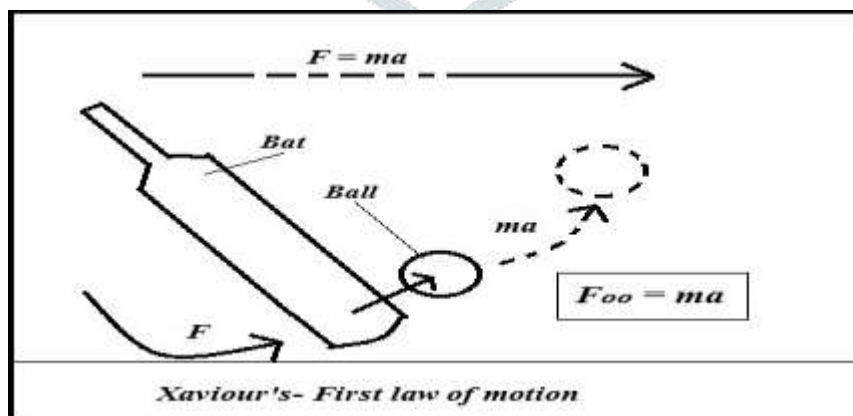
Xaviour - first law of motion states, "If the force is applied on the object, the object will move in the same direction of the force" (  $F_{oo} = ma$  ). This means that when a certain amount of force is applied on the object, it will run or try to run the same direction of the force. 99% of the world's movements are based on this. When we open and close the door of our house, we can do that because the door is moving in the same direction of force that we have given on it; when you take water from the well, we can take the water because the bucket is moving in the same direction of force that we have given on it. In most games like football, cricket, hockey, we can play because, they all on the basic of “Xaviour - first law of motion”.



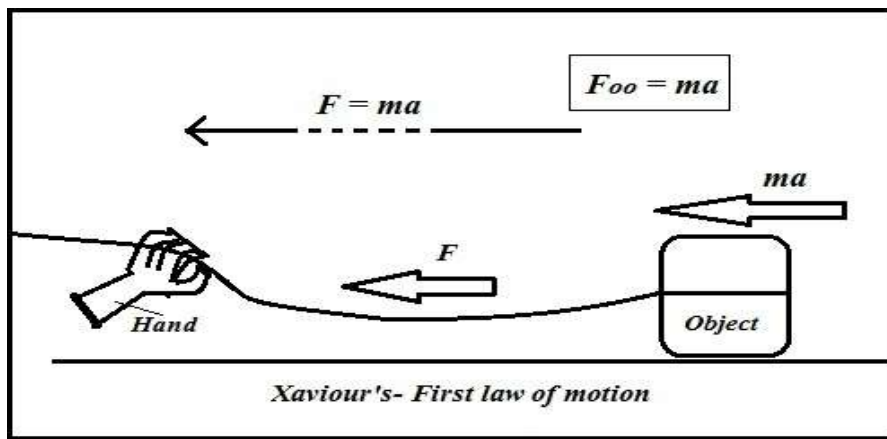
**Examples:**

**1. Cricket ball motion:**

During the cricket game, bowler gives the force on the ball from his hand. The ball moves forward in the same direction as the force given on it. Like this, when batsman hits the ball, the force is exchanged from the bat to the ball. The ball moves forward in the same direction as the force given on it. This is what this means, the movement is taking place on the basis of the Xaviour’s first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").



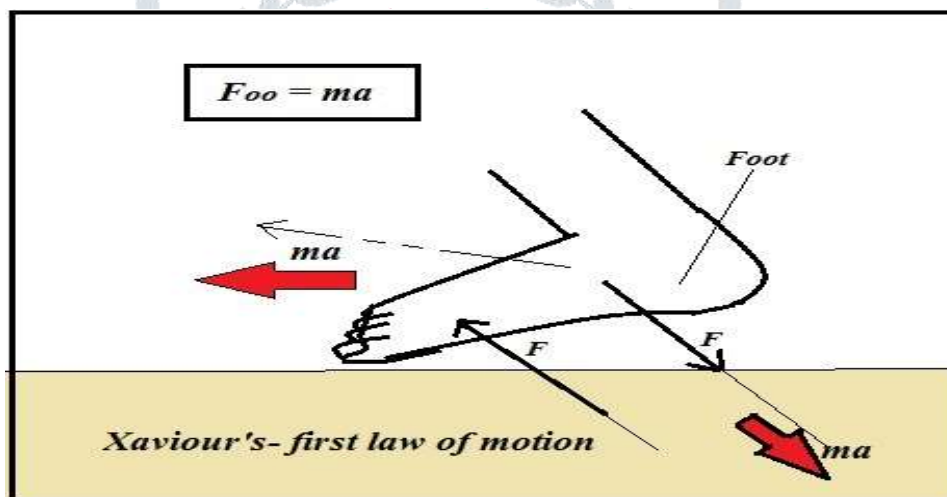
**2. The movement of object to be tied up and pulled by the rope:**



When you hold and pull a piece bound by the rope, the object will move toward us because, the direction of the force that we execute on the object is towards us from the object. This is what this means, the movement is taking place on the basis of the Xaviour's first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").

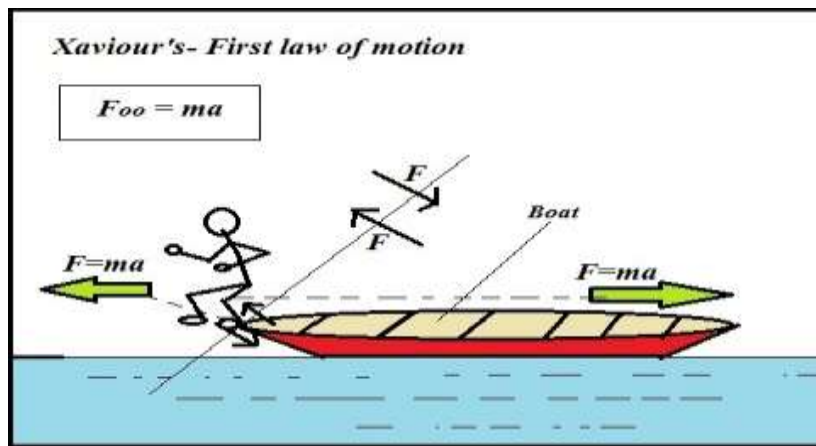
**3. The reason we walk on the ground.**

When we walk, our leg gives a certain amount of force on the ground and attempts to move the ground (the earth) in the direction of the acting force. But, because the Earth is too large (it has a high mass), our strength is not stronger than the strength of the Earth's stability. Thus, the Earth does not move; rather when we walk (when the foot touches with the ground) our leg moves on the same direction of the force that causes the ground on our feet. This is what this means, the movement is taking place on the basis of the Xaviour's first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").



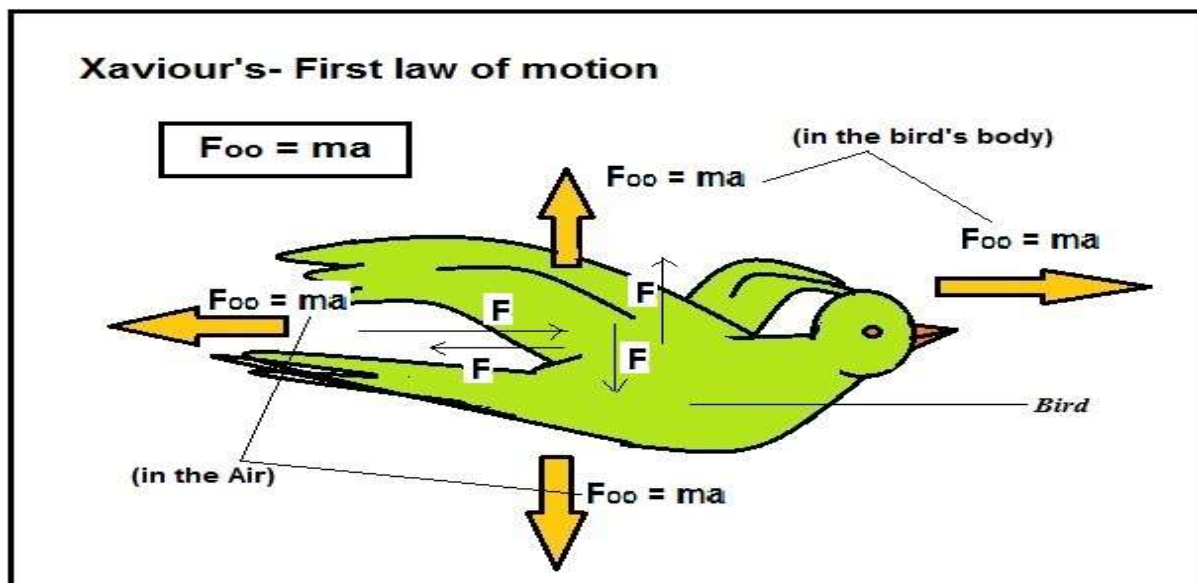
**4. The movement of the person who jumps from a floating boat into water.**

When a person tries to jump into the water from a floating boat, the boat is moving backwards and the person is moving forward because the person gives the backward force on the boat. So, it moves backward in the same direction of the force; similarly, the boat gives the forward force on that person. Thus, the person is moving forward in the same direction of the force. In this action, two movements are happening in a single place. This is the reason is Xaviour's first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").



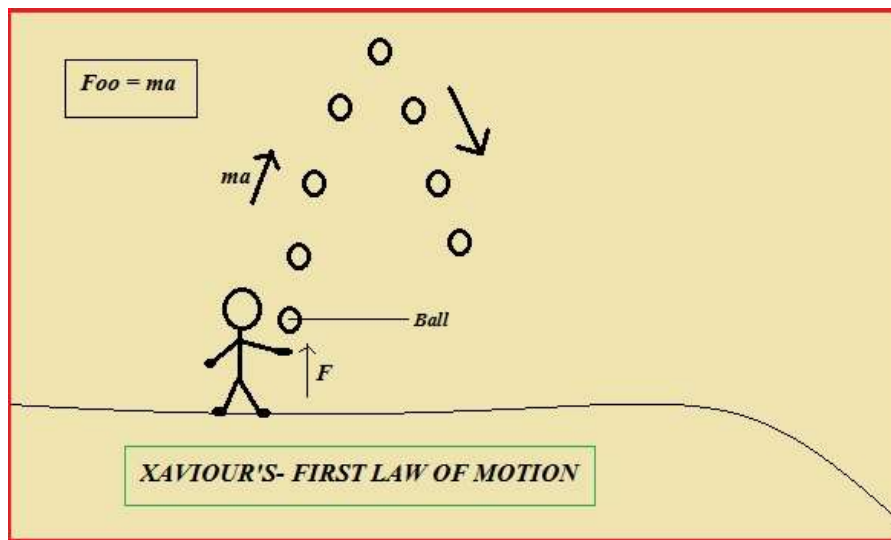
**5. Action of the flying birds.**

Birds naturally have a boat like body to fly. When they are flying, the wings are moving fast up and down. Thus, wings activate the downward force on the air; similarly, air activates the upward force on the wings. Hence, the bird move in the direction of upward force that activated by the air; and the air move in the direction of downward force that activated by the birds. So, this is what this means, the movements is taking place on the basis of the Xaviour's first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").



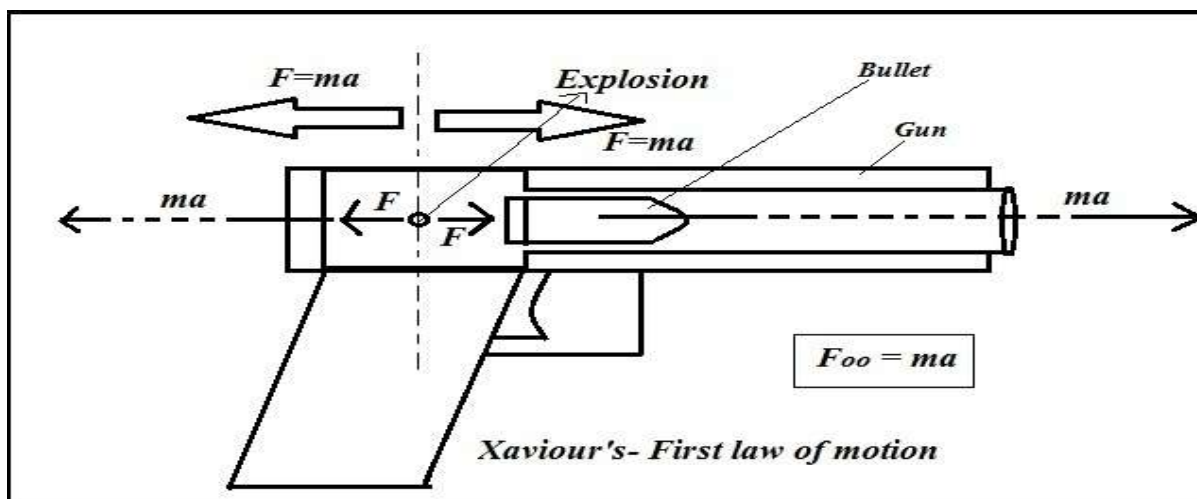
**6. Movement of throwing ball.**

When the ball throws up, we can see that it goes up to a certain distance and then comes down because, the direction of force that we put on the ball is upward, so the ball runs up. After the strength of the force decreases, the gravitational force pulls downwards, the ball runs in the same direction and falls down. This is the reason is Xaviour's first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").



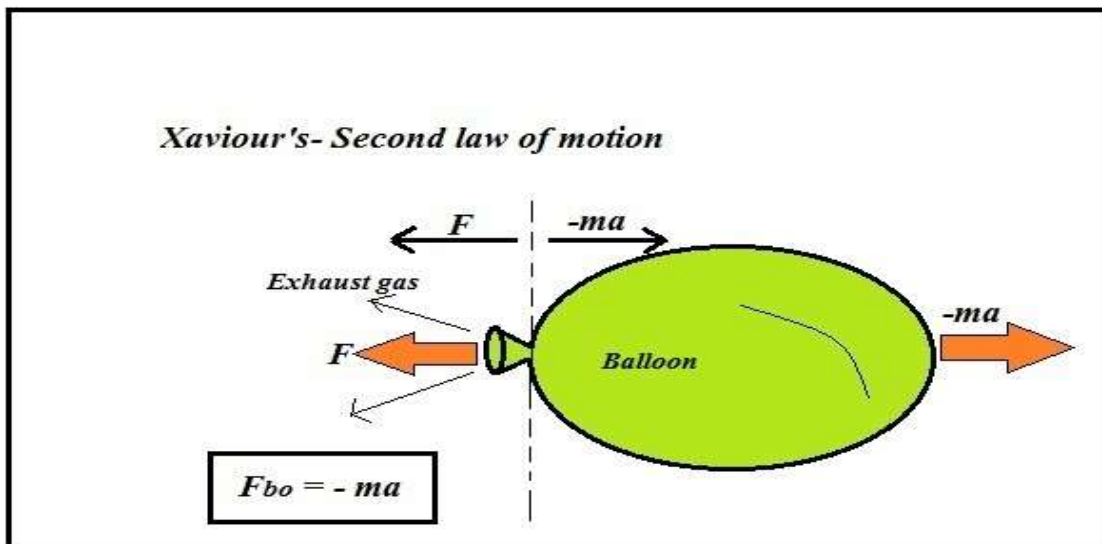
**7. Action of gun and cannon.**

In the gun and cannon, the force acts on both sides (front and back) from the center of explosion. Inside of them, gun powder explosion occurs between the inner back side of gun and the bullet. So, there very strong force exposed from this explosion and it is acts equally on all the sides, centered with the explosion point. Because of this, the bullet runs in the same direction of forwarding force; and the gun or cannon moves in the same direction of backward force. This is the real reason hiding in the action of gun and cannon. So, these movements are taking place on the basis of the Xaviour’s first law of motion ("If the force is applied on the object, the object will move in the same direction of the force").



**Description of Xaviour’s second law of motion:**

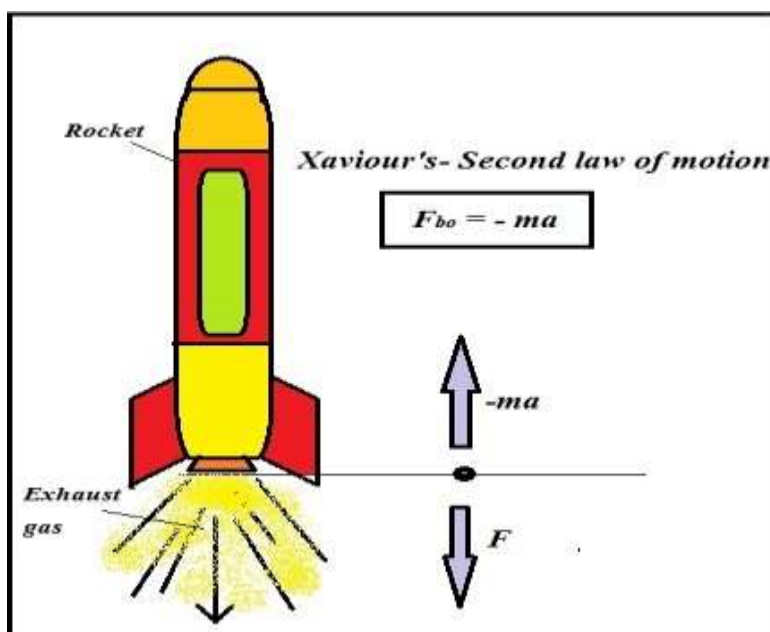
Xaviour - second law of motion states, "If force is released from the object, that object will move in the opposite direction of the force" ( $F_{bo} = -ma$ ). This means that when a certain amount of force is applied on the object, it will run or try to run the same direction of the force. Some actions happen by this law in this world.



**Examples:**

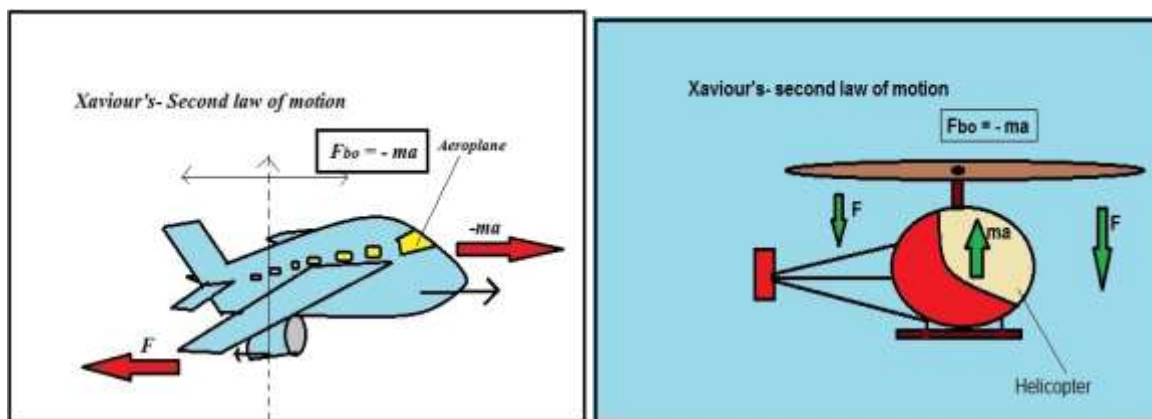
**1. Movement of the ROCKET:**

The rocket is a single object. Therefore, it is not possible to exchange the force from one to another. The motion of the rocket is a different from the motion of other objects. It works by releasing the force from itself; not applying on other object. When the rocket starts to operate, the high speed downward force emerges from the base of the rocket, as the compressed fuel is burned within it. For this reason, the rocket runs towards the top. My second law of motion states that, "If force is released from the object, that object will move in the opposite direction of the force" ( $F_{bo} = -ma$ ). Here, Xaviour's Second Law of Motion works. This is the real reason for the motion of the rocket. From this, it is clear that the rocket's movement and Newton's 3rd law do not have any connection.



**2. Movement of the Airplane and Helicopter.**





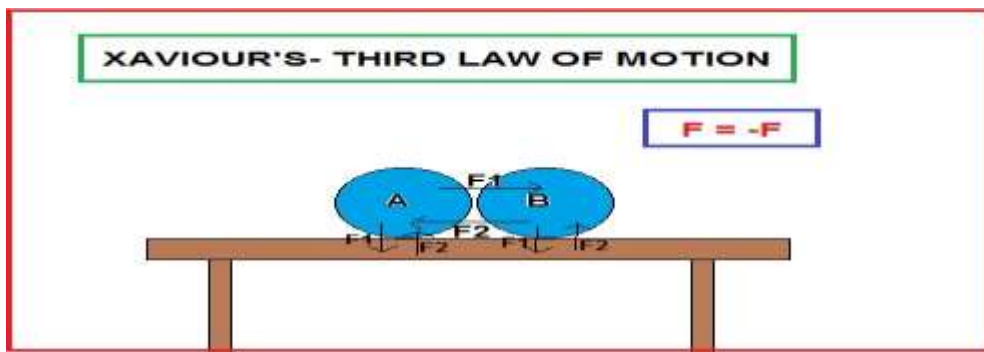
When the plane is running, the air is sucked and pushing back very fast. So, the plane is moving forward. Xaviour’s second law of motion states that, "If force is released from the object, that object will move in the opposite direction of the force" ( $F_{bo} = -ma$ ). So, these movements are taking place on the basis of my second law of motion. Similarly, when the helicopter is running, the air is sucked from the top, and pushing towards bottom by the wings. So, these movements are taking place on the basis of my second law of motion ("If force is released from the object, tha object will move in the opposite direction of the force" ( $F_{bo} = -ma$ )).

**Difference between Xaviour’s first and second law of motion:**

Xaviour’s first law motion	Xaviour’s second law motion
1. More than one object are related Motion.	1. Only one object is in this action.
2. The external force is applied on the second object.	2. The force is released from the inner body of same object.
3. The object move in the same direction of the force	3. The object move in the opposite direction of the force
4. Formula: $F_{oo} = ma$	4. Formula: $F_{bo} = -ma$

**Description of Xaviour’s third law of motion:**

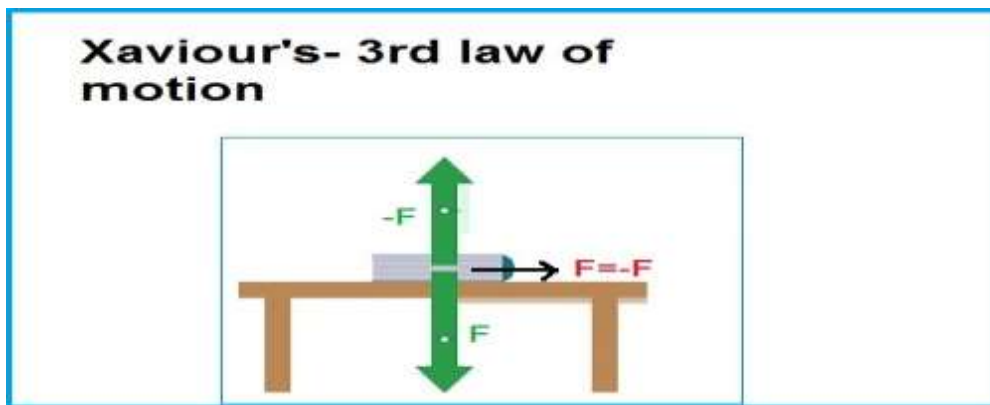
Xaviour’s third law of motion states that, “When the force is blocked, the equivalent force is in the opposite direction.” ( $F = -F$ ). Which means, when an object that runs by the particular force, is stopped by another object, there only the opposite force will occur. If the force is not stopped, there is no opposite force. No opposite force, no action. For example, consider two equal size objects A and B. At first, let’s imagine object A is moving in vacuum. It is continue its moving because there is no another object to stops its motion. Rather if object B interrupt the path of object A, those two objects are collide because the force is blocked. In this situation, the equivalent opposite force is in opposite direction. My third law of motion is explains the same thing. This law not explains the motion. It explains an incident which happens in the starting point of a motion.



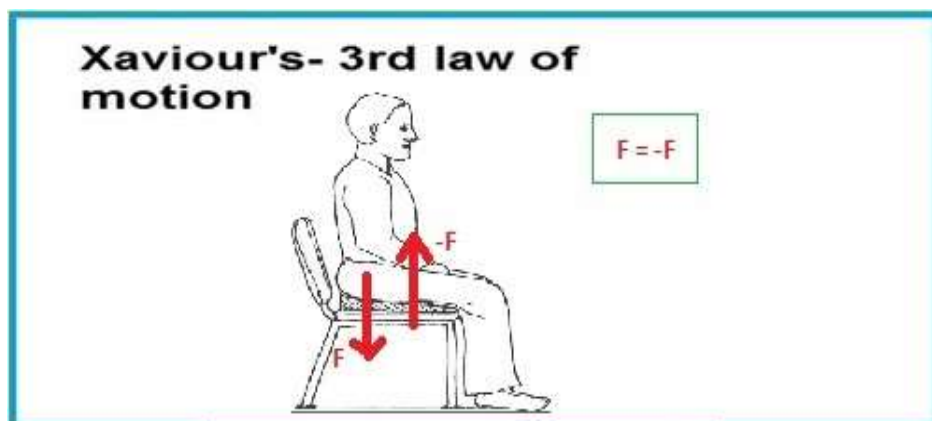
### Examples:

#### 1. Action of a book on the table.

Consider the book on the table. It will be resting on the table due to the gravitational force. It gives the particular amount of force on the table. The table also exerts the same amount of force on the book in the opposite direction. There is the forces are blocked by another one. So, the opposite force is occurs. If that book is not touch the table, there would not be any opposite force. This action happening due to the Xaviour's 3<sup>rd</sup> law of motion ("When the force is blocked, the equivalent force is in the opposite direction." ( $F = -F$ )).



#### 2. The reason for sitting n the chair.

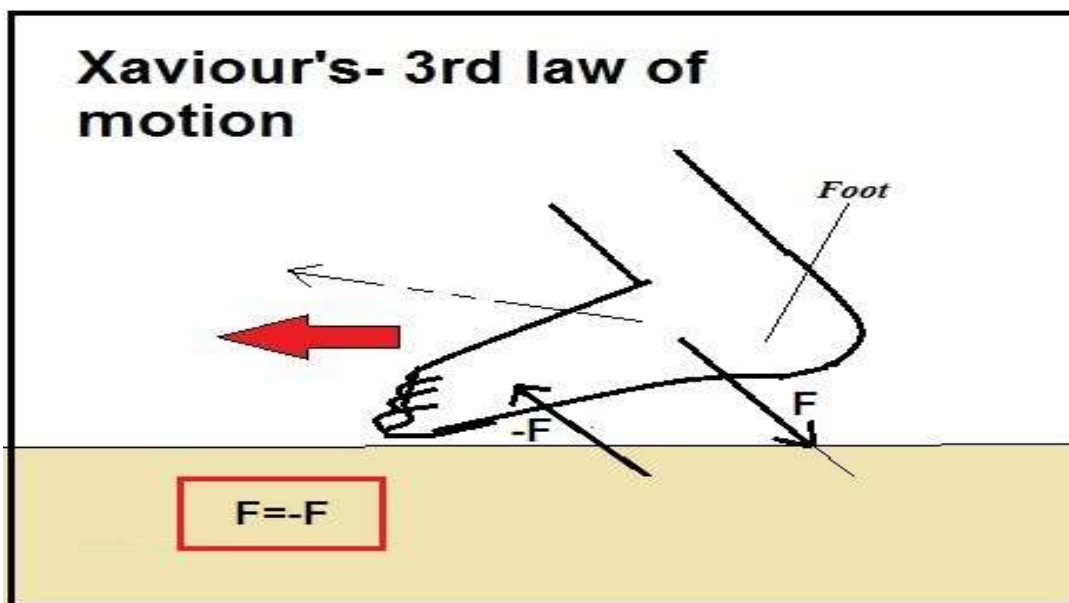


When we are sitting on the chair, our body is touching with the chair. So, the forces are interchange from one to another. Because of the forces are equal, no movements is there. This action happening due to the Xaviour's 3<sup>rd</sup> law of motion ("When the force is blocked, the equivalent force is in the opposite direction." ( $F = -F$ )).

#### 3. We walk on the ground.

When we walk on the floor, the legs give the particular amount of force on the floor. When the floor is blocking the force that produced by the legs, the equivalent opposite force acts on our feet. Xaviour's 3<sup>rd</sup> Law of motion is the reason for this motion. That is, according to the Xaviour's 3<sup>rd</sup> Law of Motion, when the force is blocked there will be an equivalent opposite force that

will be created, and transfers the force between the legs and the floor. This means that the opposite force will be created only when the force is blocked.



**The difference between Newton’s 3rd law and Xaviour’s laws of motion:**

When you look at Xaviour’s Law of Motion, you may think that even Newton’s 3<sup>rd</sup> Law also states the same thing. But, it is wrong. So let’s look at the differences between Newton’s 3<sup>rd</sup> Law of Motion and Xaviour’s Law of Motion.

	Newton’s 3rd law of motion	Xaviour’s laws of motion
1.	It says, every action there is an equal and opposite reaction.	Not for all the action. Where the two forces are collides, there only be the opposite action.
2.	It don’t says anything about the direction of an action is varies by the direction of the force.	It clearly says the direction of an action is varies by the direction of the force. The direction of the action is depend on the direction of the force.
3.	It says the force and actions are same things.	It says the force and action is not the same thing. They are different and they have different meaning. Force is the source of a motion; motion is the result of a force.
4.	We can’t know the direction of the motion.	We can know the direction of the notion.

**Conclusion:**

Even though the general reason for the movements in nature is force, the motions are happening by the two sections. That is accepting the Force and the releasing the Force. This means that, depending on the nature of the force, both the force accepting

objects and force releasing objects does move. But, the direction of their motion varies by the direction of the operating force. This is what is explained in Xaviour's Laws of motion.

**First law:**

"If force is applied on the object, that object will move in the same direction of the force." ( $F_{oo} = ma$ )

**Second law:**

"If force is released from the object, that object will move in the opposite direction of the force."

$$-F_{bo} = ma$$

i.e,  $F_{bo} = -ma$

**Third law:**

"When the force is blocked, the equivalent force is in the opposite direction."

$$F = -F$$

Wherever the motion takes place, you can find the true reason of that motion through my motion laws (Xaviour's Laws of Motion). Xaviour's Laws of Motion will be the explanation of motion and also will be as a replacement for Newton's Law of Motion. It is true that if we use Xaviour's Laws of Motion instead of Newton's Law we can understand the Physics much better than as it is now. The sentence "For every action, there is an equal and opposite reaction" can be the perfect Philosophical word and Life Protocol, but can't be the scientific law. This is my humble opinion. ...Thanks.

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