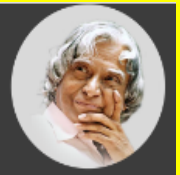
Srini Science Mind

Abdul Kalam Physical Science Group



NEW

9th class

PHYSICAL SCIENCE

MODEL LESSON PLAN

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MODEL LESSON PLAN

CLASS: 09 **SUBJECT: PS** **Name of the Teacher: M.Srinivasa Rao** **Name of the School: A.G.K.M.H.School, Gudivada**

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
LAWS OF MOTION (Chapter-2)	Galileo Galilee Experiments on motion	1	xx/xx/xxxx	xx/xx/xxxx	
	First law of motion and activities	3	xx/xx/xxxx	xx/xx/xxxx	
	Inertia and types of inertia with examples	2	xx/xx/xxxx	xx/xx/xxxx	
	Inertia and Mass – Linear momentum	2	xx/xx/xxxx	xx/xx/xxxx	
	Second law of motion and activities	2	xx/xx/xxxx	xx/xx/xxxx	
	Atwood machine	1	xx/xx/xxxx	xx/xx/xxxx	
	Third law of motion and activities	2	xx/xx/xxxx	xx/xx/xxxx	
	Conservation of momentum and impulse	2	xx/xx/xxxx	xx/xx/xxxx	

Prior Concept/Skills:

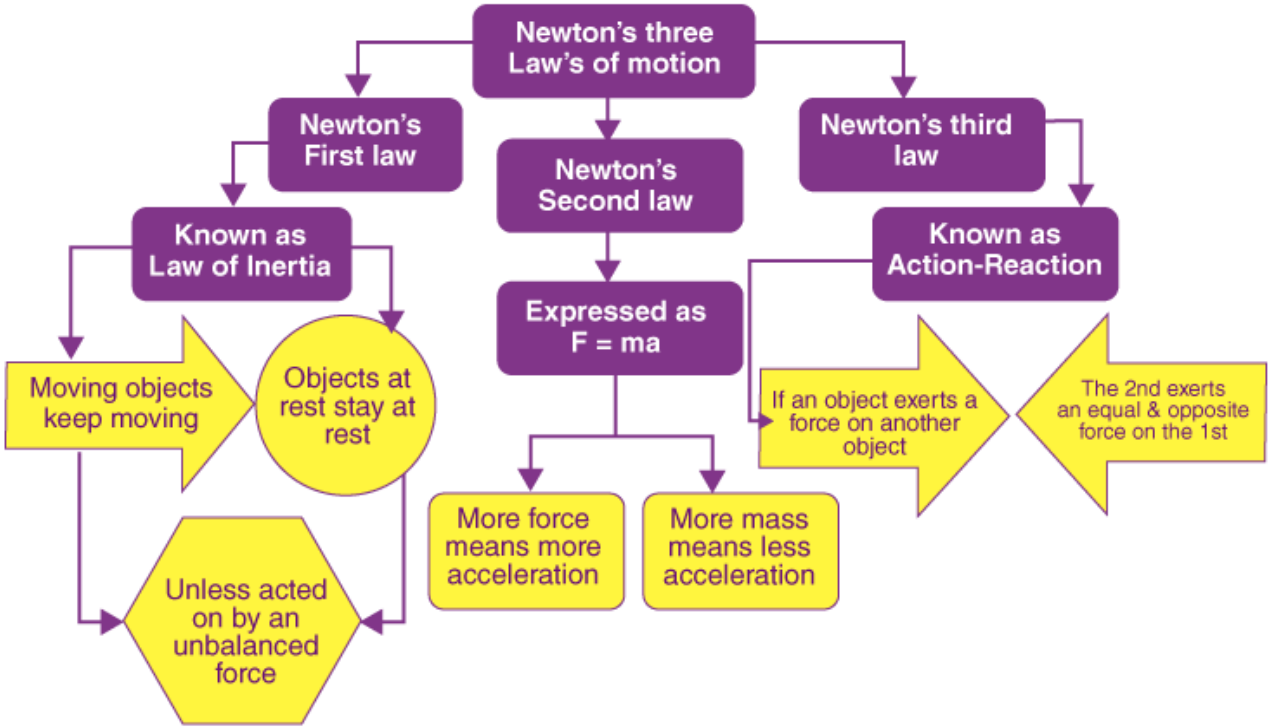
1. Define the force of friction.
2. Why tie the luggage with a rope on the roof of buses?
3. What is acceleration and write its formula?
4. Express your experience when you are standing on the moving bus, suddenly the bus driver applies breaks?

Learning Outcomes:	**No. of Periods**
1. Describe scientific discoveries and inventions of Galileo Galilee and Newton	1
2. Explains processes of the effect of force on the state of motion of objects.	1
3. Plans and conducts investigation of “Do all the bodies have the same inertia”?	1
4. Relates processes with causes and effects of inertia of the objects.	1
5. Uses scientific conventions, and equations to represent various quantities and units of linear momentum, Impulse of net force and acceleration.	1
6. Derives formulae, equations, and laws of mathematical expressions for Newton’s second law of motion	2
7. Explains processes of action and reaction.	1
8. Draws conclusion of the effect of action and reaction on two different bodies.	1
9. Draws labelled diagrams of “To show the action and reaction forces acting on two different objects”	1
10. Derives formulae, equations, and laws of mathematical expressions for law of conservation of momentum,	1
11. Explains processes of law of conservation of momentum.	1
12. Applies scientific concepts in daily life and solving problems like uses safety belts in automobiles.	1
13. Calculates using the data given of Mass, Velocity, Linear momentum and Impulse.	1

14. Uses scientific conventions, symbols and equations to represent various quantities and units of force, linear momentum, Impulsive force.	1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students are able to utilize Newton's laws of motion day–to–day life.
2. Students will understand the relationship between the law of conservation of momentum and Newton's third law of motion and apply it in everyday life
3. Students will be able to identify where the law of conservation of momentum occurs in their daily routines.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and conduct activity of motion along inclined planes with	1. Group discussion on the motion of the object on different surfaces.		1. Galileo's gives conclusion on the

different slopes and Motion from inclined surface to plane surface. 2. Explain the first law of motion. 3. Observation and conduct the motion of a pen cap kept on thick paper ring. 4. Observation and conduct the motion of the coins hit by a striker. 5. Discussion and explain the types of Inertia. 6. Explain the relation between inertia and mass with activity. 7. Explain the concept of linear momentum. 8. Discussion and conduct on larger the net force greater the acceleration and conduct on larger the mass smaller the acceleration. 9. Explain second law of motion. 10. Explain Atwood machine. 11. Discussion and explain of third law of motion. 12. Conduct an experiment of action and reaction forces acting on two different objects. 13. Explain and derivation of law of conservation of momentum.	2. Describe the activity of first law of motion. 3. Students arrange the apparatus in proper order 4. Conduct activity and record the Observations. 5. Collect examples of inertia. 6. Students easily identify the less inertia object and high inertia object from given objects 7. Group discussion on relation between force and mass, mass and acceleration. 8. Draw the diagram of atwood machine 9. Collect the information on the utilization of the third law of motion in our daily life situations. 10. Students describe the procedure of Experiment. 11.Solved the problems on law of conservation of momentum.	1. State first law of motion? 2. Write the units of force? 3. Students gives the examples of inertia in own way. 4. Students complete the homework 5. Students write the mathematical expression of linear momentum and units. 6. Solved the problems on second law of motion. 7. Write Newton's third law of motion. 8. Students conduct an experiment on show that third law of motion.	moving of an object. 2. What is another name for Newton's first law of motion? 3. Which is the property of the object? 4. How many types of inertia? What are they? 5. If $F_{net} = 0$ then, what is the velocity of an object? 6. What is the S.I unit of linear momentum? 7. State Newton's second law of motion. 7. $F_{net} = ma$ can be applied only for which system? 8. State Newton's third law of motion. 9. Write the mathematical expression of the law

14. Discussion and explain the concept of impulsive force with activity	12. Solved the problems on impulsive Forces.	9. Write the definition of impulsive force.	of conservation of momentum.

Check For Understanding Questions	TLM's (Digital + Print)
1. Factual: 1. What did Galileo observe by placing two inclined planes facing each other and rolling down a marble ball from top end of one of them? 2. An athlete always runs some distance before taking a jump. Why? 3. What is the state of an object when no net force is acting on an object? **2. Open Ended/Critical Thinking:** 1. Why is it dangerous to jump out of a moving bus? 2. Air bags are used in the cars for safety. Why? 3. Are we able to make the spring balances to show different readings by pulling them simultaneously in opposite direction? Why not? 4. Why do we not experience any leaning when a train takes a turn? 5. Discuss a horse continues to apply a force in order to move a cart with a constant speed **3. Student Practice Questions & Activities:** 1. Illustrate an example of each of the three laws of motion. 2. What force is required to produce an acceleration of 3 m/s2 in an object of mass 0.7 kg? 3. Two objects have masses 8 kg and 25 kg. Which one has more inertia? Why? 4. How to show that the action and reaction forces acting on two different objects.	1. DIKSHA App 2. Used prepared Quiz paper. 3. Utilized digital classroom. 4. Youtube videos

Assessment:

1. Why do roads on mountains have inward inclination at sharp turns?
2. Collect information on the impulsive force.
3. Give three examples exhibiting inertia in our daily life.
4. An object of mass 5 kg is moving with a velocity of 10 ms^{-1}. A force is applied so that in 15 s, it attains a velocity of 25 ms^{-1}. What is the force applied on the object?

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS