



Srini Science Mind
Abdul Kalam Physical Science Group



NEW

9th class

PHYSICAL SCIENCE

LESSON PLAN with BYJU's Content

Visit: [srini science mind](http://srini-science-mind.com)



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LESSON PLAN

CLASS: 09

SUBJECT: PS

Name of the Teacher: M.Srinivasa Rao

Name of the School: SPSMH School, Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Gravitation (Chapter – 9)	Gravitation	1			
	Universal law of gravitation and importance	2			
	Free fall	1			
	Motion of object under the influence of gravitational force of the earth	2			
	BYJU's Content Review	1			
	Mass, Weight	2			
	Thrust and Pressure	2			
	Pressure in fluids, Buoyancy	2			
	Archimedes' Principle	2			
	BYJU's Content Review	1			

Prior Concept/Skills:

1. Define acceleration due to gravity?
2. Express the equations of uniform accelerated motion.
3. Does the velocity of the body change in uniform circular motion?

Learning Outcomes:

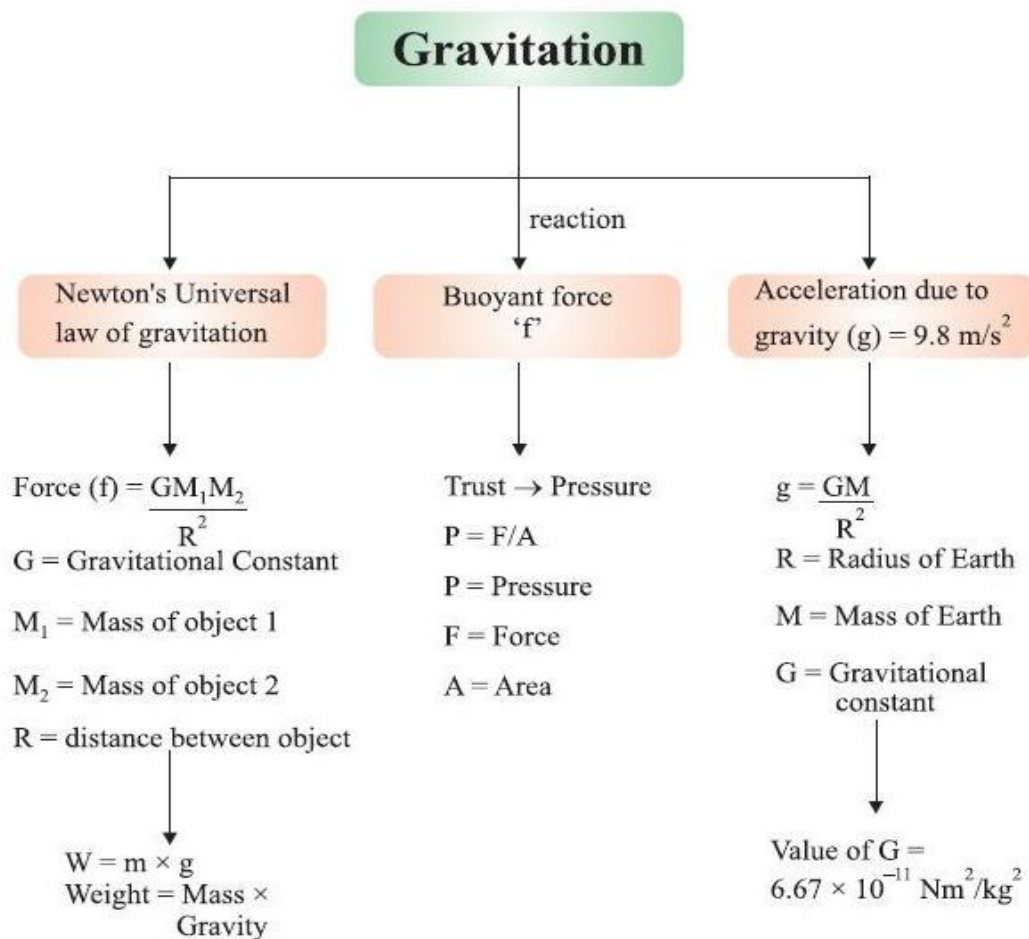
1. Relates processes and phenomena with effects of centripetal force in life situations.
2. Describes scientific discoveries and inventions of laws in gravitation.
3. Communicates the findings and conclusions effectively of universal gravitational law.
4. Derives formulae, equations, and laws of expression for force of gravity.
5. Uses scientific conventions and equations to represent various quantities of Universal gravitational law.
6. Differentiate phenomena of thrust and pressure based on their properties.
7. Measures weight of an object using spring balance.
8. Applies learning to hypothetical situations of weight of an object at moon.
9. Applies learning to hypothetical situations of weight of an object at equator and poles, possibility of life on other planets.
10. Seek answers to queries on their own of "How objects float or sink on the surface of the fluids"?
11. Calculates using the data given such as acceleration due to gravity on a body.
12. Calculate using the data given such as buoyancy force acting on a body and determine its impact.

No. of Periods

- 1
2
1
2
1
1
2
1
1
2
1
1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students will learn how acceleration due to gravity affects the motion of objects in everyday life.
2. Students will learn about the forces acting between the planets, the sun and planets in the solar system.
3. Students assess the stability of objects by finding the center of gravity of objects used in everyday life.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and demonstrate activity on uniform circular motion.	1. Students observe the entire activity.	1. Students write the definition of uniform motion.	1. Which physical quantity is constant in uniform motion?

2. Explain the concepts of centripetal acceleration and centripetal force.	2. Students draw tangent to a circle.	2. Students give a reason, why centripetal force acting	2. Why uniform circular motion is called accelerated motion?
3. Explain and derivation of the universal law of gravitation and importance.	3. Students collect information on the universal law of gravitation.	3. Students write the Universal law of gravitation.	3. What factors affect the centripetal force?
4. Explain problems and solutions to Newton's gravitational law.	4. Students solved the problems on Newton's gravitational law.	4. Students complete the homework.	4. What is the value of G?
5. Explain the concept of free fall and calculating g value	5. "Acceleration due to gravity changes due to change in distances of objects from the center of the earth" –Group discussion	5. Students write the values of G, R and g values.	5. Why is G called a universal constant?
6. Explain and conduct activity on motion of objects under the influence of gravitational force of the earth.	6. Students write the equations of motion for freely falling bodies.	6. Students write the unit and value of 'g'	6. $g = GM/R^2$, Explain terms in it.
7. Explain the problems and solved on motion of objects under the influence of gravitational force of the earth.	7. Students solved the problems on motion of objects under the influence of gravitational force of the earth.	7. Students complete the homework.	7. Give an example for the speed of the object is zero, but g is not zero.
8. Review of Byju's tab content	8. Viewing the content in Byju's Tab	8. Viewing the content in Byju's Tab	8. What is the S.I unit of g?
9. Explain the concept of mass, weight and weight of an object on the moon.	9. Students conduct this activity and record the observations.	9. Why does the weight of a body will be zero during free fall? Give reason	9. Why do two bodies of different masses fall at the same rate?
10. Explain the concepts of thrust and pressure, their relative problems.	10. Why do building have wide foundation? – Group discussion.	10. Students solved the problems on thrust and pressure.	10. Define the term "Pressure"
11. Conduct activity on pressure in fluids and buoyancy.	11. Students give the examples of fluids	11. Students define the Buoyancy.	11. Why does a mug full of water feel lighter inside water?
12. Explain and conduct activity on "Why objects float or sink when placed on the surface of water?"	12. Students conduct activity and identified the float or sink objects.	12. Students complete the homework	12. Why do objects float or sink when placed on the surface of a liquid?
13. Explain the concept of Archimedes'	13. Students give the applications of	13. Students measures the	13. State Archimedes'

Principle and conduct an activity.	Archimedes's principle	weights of the objects.	Principles
14. Review of Byju's tab content	14. Viewing the content in Byju's Tab	14. Viewing the content in Byju's Tab	

Check For Understanding Questions	TLM's (Digital + Print)
<p>1. Factual:</p> <ol style="list-style-type: none"> 1. Is the mass of an object a constant quantity? 2. Why is the weight of an object on the moon $1/6^{\text{th}}$ its weight on the earth? 3. Is there any change in the velocity of a freely falling body? <p>2. Open Ended/Critical Thinking:</p> <ol style="list-style-type: none"> 1. What would have happened if the Earth did not rotate? 2. Why does the weight of an object depend on its location? 3. Why is the acceleration due to gravity not constant? <p>3. Student Practice Questions & Activities:</p> <ol style="list-style-type: none"> 1. What is the importance of universal law of gravitation? 2. Gravitational force acts on all objects in proportion to their masses. Why then, a heavy object does not fall faster than a light object? 3. Gravitational force on the surface of the moon is only $1/6$ as strong as gravitational force on the earth. What is the weight in newtons of a 10 kg object on the moon and on the earth? 4. Calculate the force of gravitation between the earth and the Sun, given that the mass of the earth = 6×10^{24} kg and of the Sun = 2×10^{30} kg. The average distance between the two is 1.5×10^{11} m. 	<ol style="list-style-type: none"> 1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links QR codes, DIKSHA App 4. YouTube video links 5. Byju's Tab 6. IFP
<p>Assessment:</p> <ol style="list-style-type: none"> 1. What happens to the force between two objects, if <ol style="list-style-type: none"> (i) the mass of one object is doubled? (ii) the distance between the objects is doubled and tripled? (iii) the masses of both objects are doubled? 2. A stone is released from the top of a tower of height 19.6 m. Calculate its final velocity just before touching the ground. 3. If the moon attracts the earth, why does the earth not move towards the moon? 4. Why does a block of plastic released under water come up to the surface of water? 5. The volume of 50 g of a substance is 20 cm^3. If the density of water is 1 g cm^{-3}, will the substance float or sink? 	

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS