Lesson plan/note for week 8 ending, 3rd March,2023

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| Term | 2nd term |
| Week | Week 9and 10 |
| Date | 27th February/28th February/ 1st March,2023. |
| Class | JSS 2 |
| Subject | Basic Science |
| Topic | Potential and Kinetic Energy |
| Sub-topic | Calculations on potential and kinetic energy |
| Period | 9th/7th/9th |
| Time | 2:00-2:30pm/12:30-1:00 pm/2:00-2:30pm. |
| Duration | 30 minutes each |
| Number in class | Twelve |
| Average age | 12 years |
| Sex | Mixed |
| Specific Objectives | By the end of the lesson, the students should be able to:  1.State formula for calculating potential energy  2.Solve calculations on potential energy  3.State formula for calculating kinetic energy  4.Solve calculations on kinetic energy |
| Rationale | To enable students understand how to solve calculations on potential and kinetic energy. |
| Previous Knowledge | Students are familiar with potential and kinetic energy |
| Instructional Resources | A ball and a table. |
| Reference Material | i.Excellence in Basic Science and Technology for JSS 2 by Olushola Felix Bello.  ii.Examination success by Mary Jane I.A |

Lesson Development

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| Steps | Teacher’s Activities | Students’ Activities | Learning Point |
| Introduction | Teacher asks students to differentiate between potential and kinetic energy | Students respond to teacher’s question | To arouse students’ interest |
| Step I | Teacher explains gravitational and elastic potential energy and states the formula for calculating potential energy as: Potential energy, P.E= mgh | Students listen to teacher’s explanation and ask questions where necessary. | To keep students focus on the lesson. |
| Step II | Teacher writes question on potential energy and guides students to solve the question:  1.Safiya places a 5kg brick on a chair in the classroom. The chair is 1.0 meters off the ground. What is the potential energy? (g=10m/s^2)  2.What is the potential energy of a 3kg ball that is on the ground? (g=10m/s^2) | Students take part in the class activity | To encourage critical thinking |
| Step III | Teacher states the formula for calculating kinetic energy as:  Kinetic energy, K.E= 1/2mv^2 | Students pay attention to teacher’s explanation | To keep students focus on the lesson. |
| Step IV | Teacher guides students to solve the calculation on kinetic energy:  Calculate the kinetic energy of a 200kg object moving at a velocity of 3m/s | Students participate in the class activity | To encourage critical thinking |
| Board Summary | Calculations on Potential Energy  Potential energy is the energy a body possesses by reason of its position or rest.  --Gravitational potential energy is the energy due to the position of an object above the earth's surface.  --Elastic potential energy is energy stored in objects that can be compressed or stretched .  The formula for calculating potential energy is  P.E=mgh  Where;  M=mass of the object in kilogram (kg)  g=acceleration due to gravity=9.8m/s^2=10m/s^2  h=height I’m meters(m)  Calculations on Potential Energy  Examples:  1.Safiya places a 5kg brick on a chair in the classroom. The chair is 1.0meters off the ground. What is the potential energy. (g=10m/s^2)  Solution  Potential Energy (P.E) =mgh  Mass=5kg  g=10m/s^2  h=1.0m  P.E=mgh  =5×10×1  =50 Joules  2.What is the potential energy of a 3kg ball that is on the ground? (g=10m/s^2)  Solution  Potential Energy (P.E) =mgh  M=3kg  g=10m/s^2  h=0m  P.E=mgh  =3×10×0  =0 Joules  Calculations on Kinetic Energy  Kinetic energy is the energy a body possesses at motion or due to its movement.  The kinetic energy of an object is dependent on its mass and velocity and is given by:  K.E= 1/2mv^2  M=Mass of the object in kg  V= Velocity of the object (that is the rate at which the object changes its position) in m/s  Kinetic energy is measured in Joules.  Calculations on Kinetic Energy  Example:  Calculate the kinetic energy of a 200kg object moving at a velocity of 3m/s  Solution  Kinetic Energy, K.E=1/2mv^2  Mass=200kg  Velocity=3m/s  K.E=1/2mv^2  =1/2×200×3^2  =100×9  =900 Joules. | Students copy the note. | To serve as a reference point to students. |
| Evaluation | Teacher asks students the following questions:  1.State the formula for calculating potential energy.  2.Calculate the mass in kg of a ball at a height of 3m above the ground with a potential energy of 120Joules.(g=10m/s^2)  3.State the formula for calculating kinetic energy  4.A soft ball of mass 25kg is thrown with a velocity of 4m/s. What is the kinetic energy? | Students respond to teacher’s questions. | To ascertain students’ understanding of the lesson. |
| Conclusion | Teacher assesses students and make corrections where necessary | Students take correction | For a better understanding. |
| Assignment | 1.A boy of mass 20kg stands on a building floor 12m above the ground level. Calculate the potential energy. (g=10m/s^2)  2.If the mass of a ball is 10g and it is on a hedge of 5m. What is the potential energy? (g=10m/s^2)  3.The potential energy in Joules of a ball of mass 5kg is 200. Calculate the height of g=10m/s^2) | Students write down the assignment | To engage students at home. |