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| **Learning Planner** |
| **Subject** | *General science* | **Week** | *16* | **Duration** | *180 min* | **Form** |  *SHS 1* |
| **Strand** | VIGOUR BEHIND LIFE | **Sub-Strand** | Forces acting on substances and mechanisms |
| **Content Standard** | Recognize the various forms of forces and their effects on motions |
| **Learning Outcome(s)** | Apply various forms of forces according to their effects on motions. |
| **Learning****Indicator(s)** | Identify and explain concepts associated with forces |
| **Essential Question(s)**  | *Compare and contrast similarities and differences between acceleration and velocity using Venn diagram.**Are there any relationship between velocity, time, and acceleration?**What materials will be needed to demonstrate to learners the topic* Forces acting on substances and mechanisms. |
| **Pedagogical Strategies** | * Collaborative learning
* Talk-for-learning approaches
* Demonstration
* Think-pair share
* Enquiry-based approach
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| **Teaching & Learning Resources** | * Stop clocks/watches.
* charts, pictures and models.
* Bicycle wheels and pendulum bobs.
* PHET Simulations
* Pendulum bob
* Balls (Volley, foot, basket, etc.),
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| **Key Notes on Differentiation** |
| * Identify the concepts of forces.
* Explain concepts associated with forces.
* Use hands-on experiment to explain some concepts associated with forces such as frictional force..
	+ 1. Pedagogical Exemplars
* Using the talk-for-learning approach, place learners in mixed-ability/mixed-sex groups to discuss the concepts of distance, displacement, speed, velocity and acceleration with contextual examples
* Using the enquiry approach, guide learners to develop task sheets to explore real-life applications of the concepts: speed, displacement, velocity, and acceleration
* Using the 3E approach, guide learners to engage, explore and explain concepts such as forces, momentum and pressure
* Using differentiated learning and scaffolding, guide learners to explore the applications of the concepts of forces, Momentum and Pressure in real life, etc.
1. Key Assessment (DoK)
* When a carpet is beaten with a stick, dust emerges. Explain
* Why is it advised to tie any luggage kept on the roof of a bus with a rope?
* Why is the passenger(s) sitting in a moving bus pushed in the forward direction when the bus stops suddenly?
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| **Keywords** |  |
| **Lesson 1****Identification and Explanation of Concepts Associated with Forces** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| ***Teacher Activity***  | ***Learner Activity*** |
| **Starter *Activity (10 minutes)*** ***Ask learners to sing the rhym; My head my shoulders….*** |
| ***Introductory Activity (15minutes)****Put learners in mixed-ability and mixed-gender groups.****Activity 1 (40 minutes)****Ask learners to search the internet and note the following quantities with contextual examples.**Distance**Speed**Velocity**Acceleration****Activity 2 (40 minutes)****Ask learners to discuss their findings in their groups.****Activity 3 (40 minutes)****Guide learners in developing task sheets to explore real-life applications of the concepts of speed, displacement, velocity, and acceleration.*  | ***Introductory Activity*** *Learners seated in their mixed-ability and mixed-gender groups.****Activity 1*** *Search the internet and note the following quantities with contextual examples.****Activity 2*** *Learners discuss their findings in their groups***Activity 3***Develop task sheets to explore real-life applications of speed, displacement, velocity, and acceleration.* |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| Level 1: Differentiate between acceleration and velocity. |
| **Lesson Closure** ***In completing this part, refer to the Essential Questions to check that learning has taken place.*** |
| ***Activity (15 minutes)*** *Using Pass-that-question, ask learners to write any question on the lesson.**Summarize the lesson highlighting the salient points.* |
| **Reflection & Remarks** |
| *Reflections**Remarks* |
| **Lesson 2****Identification and Explanation of Concepts Associated with Forces** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| ***Teacher Activity***  | ***Learner Activity*** |
| **Starter *Activity (10 minutes)*** ***Ask learners to sing the rhym; My head my shoulders….*** |
| ***Introductory activity (25 minutes)****I.Put learners in mixed-gender and mixed ability groups.**Review previous lesson by asking learners to explain the concept of acceleration, velocity, speed.****Activity 1 (40 minutes)****I.In their mixed groups show a video of speed, displacement, velocity, and acceleration to learners.****Activity 2 (25 minutes)****Guide learners to comprehend how to calculate acceleration of a body in their mixed groups* ***Activity 3 (25 minutes)****I Ask learners to discuss in their mixed groups life application of the concept of displacement, acceleration, velocity and speed.* *II.Ask learners to present their findings* | ***Introductory activity (25 minutes)****Learners seated in their mixed-gender and mixed ability groups**Learners explain acceleration, velocity and speed.****Activity 1*** *Learners watch the videos and note down the various concepts****Activity 2 (25 minutes)****Learners learn how to calculate acceleration of a body in their mixed groups* ***Activity 3 (25 minutes)****Discuss in their mixed groups life application of the concept of displacement, acceleration, velocity and speed.* *II..Learners present their finding* |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| Level 3: Explain two applications of force in real-life situations. |
| **Lesson Closure** ***In completing this part, refer to the Essential Questions to check that learning has taken place.***  |
| ***Activity (15 minutes)*** *Using Pass-that-question, ask learners to write any question on the lesson.**Summarize the lesson highlighting the salient points.* |
| **Reflection & Remarks** |
| *Reflection**Remarks* |