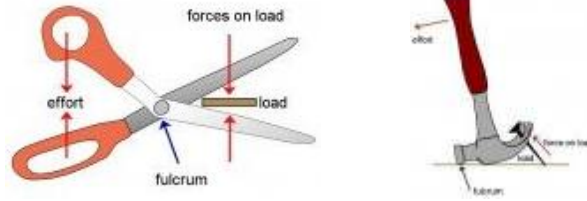


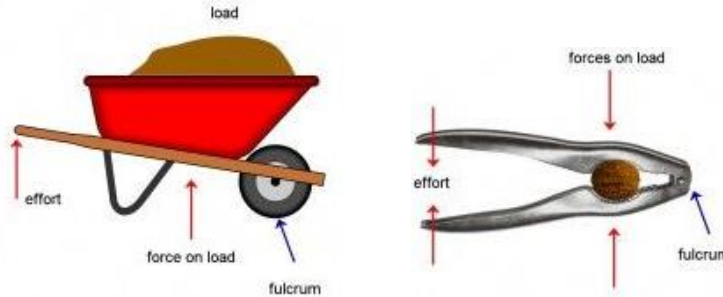
TERM THREE
WEEKLY LESSON NOTES
WEEK 6

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| Week Ending: 21 st OCT, 2022 | DAY: | Subject: Science |
| Duration: 100mins | | Strand: Forces & Energy |
| Class: B7 | Class Size: | Sub Strand: Simple Machine |
| Content Standard: B7.4.4.2 Recognize some simple machines, and show understanding of their efficiency in doing work. | Indicator: B7.4.4.2.3 Know work input, and output and efficiency as they apply to machines | Lesson: 1 of 2 |
| Performance Indicator: Learners can describe the types and functions of levers. | | Core Competencies: DL 5.3: CI 6.8: DL 5.1: CI 6.6: |
| References: Science Curriculum Pg. 38-39 | | |
| New words: Pulley, lever, machine, efficiency, fulcrum , force, weight , moments, watts, work input, work, output | | |
| Phase/Duration | Learners Activities | Resources |
| PHASE 1: STARTER | Revise with learners on the previous lesson. Share learning indicators and introduce the lesson. | |
| PHASE 2: NEW LEARNING | <p>Brainstorm learners for the meaning of lever. A lever is any rigid bar, which rotate at a certain fixed point called a pivot or fulcrum.</p> <p>Learners give examples of lever and relate to them. Examples bottle opener, a pair of scissors and wheelbarrow.</p> <p>Guide learners to identify and discuss the parts of lever.</p> <ul style="list-style-type: none"> • The effort is the force applied to the lever to lift the load(weight). • The load is weight which is to be lifted. • The pivot is the fixed point about which the lever rotates. <p>Learners to note that; The distance from the pivot to the effort is called the effort distance The distance from the pivot to the load is called the load distance. The closer the pivot is to the load; the less force is needed to lift the load and vice versa.</p> <div style="text-align: center;"> </div> <p>Learners to classify levers into first, second and third classes and demonstrate how the principals involved in each class make work easier in everyday life.</p> <ul style="list-style-type: none"> • First class lever In the first-class lever, the pivot (P) is between the effort (E) and the load (L) Examples of first class levers are | Seesaw, crowbar, a pair of scissors, wheel barrow, shovel, spoon, pliers, knife |

a pair of scissors, see-saw, pliers, pick axe, shovel, crowbar, shears, and claw hammer



- Second class lever In a second-class lever, the load(L) is between the pivot(P) and the effort (E). Examples of second class levers are wheel barrow, nutcracker and bottle opener



- Third class lever In a third-class lever, the effort(E) is between the pivot (P) and the load (L). Examples of third class levers are cutlass, hoe, forceps, fishing rod, sugar tongs, nail clippers, forearm of a human body, etc.



Assessment

Explain how levers function as simple machines

**PHASE 3:
REFLECTION**

Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson.

Take feedback from learners and summarize the lesson.

Homework

Find out why the efficiency of simple machines is less than 100%..

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| Week Ending: 21 st OCT, 2022 | DAY: | Subject: Science |
| Duration: 100mins | | Strand: Forces & Energy |
| Class: B7 | Class Size: | Sub Strand: Simple Machine |
| Content Standard: B7.4.4.2 Recognize some simple machines, and show understanding of their efficiency in doing work. | Indicator: B7.4.4.2.3 Know work input, and output and efficiency as they apply to machines | Lesson: 2 of 2 |
| Performance Indicator: Learners can explain the relationship between work input, and output and efficiency as they apply to machines | | Core Competencies: DL 5.3: CI 6.8: DL 5.1: CI 6.6: |
| References: Science Curriculum Pg. 38-39 | | |
| New words: Pulley, lever, machine, efficiency, fulcrum , force, weight , moments, watts, work input, work, output | | |

| Phase/Duration | Learners Activities | Resources |
|------------------------------|---|---|
| PHASE 1: STARTER | Revise with learners on the previous lesson. Share learning indicators and introduce the lesson. | |
| PHASE 2: NEW LEARNING | <p>Brainstorm learners to explain the terms work input, work output and efficiency.</p> <ul style="list-style-type: none"> • <i>Work input is the work done by the effort applied on a machine. The work input can be calculated mathematically by multiplying the effort by the distance moved by the effort</i> • <i>Work output is the useful work done by a machine. Work out put = load × distance moved by the load. The output of a machine is always less than input energy because part of the input energy is used to overcome</i> <ol style="list-style-type: none"> 1. Friction between moving parts of the machine. 2. Inertia. 3. gravitational force • <i>Efficiency of a machine is defined as the ratio of the work output to the work input expressed as a percentage</i> <p>Guide learners to explain the efficiency of a machine as the ratio of work output to work input expressed as a percentage.</p> <ul style="list-style-type: none"> • Mathematically; Efficiency = $\frac{\text{Work output}}{\text{Work input}} \times 100\%$ • Efficiency = $\frac{\text{Load x distance moved by load}}{\text{Effort x distance moved by effort}} \times 100\%$ <p>Guide learners to explain the concept of efficiency of a machine. <i>The efficiency of a machine is always less than 100% because some or part of the input energy is used to overcome</i></p> <ol style="list-style-type: none"> 1. friction between moving parts of the machine. 2. gravitational force 3. air resistance <p>In groups, learners describe how efficiency of simple machines can be improved (e.g. by oiling its parts to reduce friction).</p> <p><i>To improve upon the efficiency of a machine you need to</i></p> <ul style="list-style-type: none"> • <i>decrease friction by oiling and greasing the metal parts of machines.</i> • <i>maintaining the machines from time to time</i> | Seesaw, crowbar, a pair of scissors, wheel barrow, shovel, spoon, pliers, knife |

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| | <u>Assessment</u> 1. Explain how levers function as simple machines. 2. Find out why the efficiency of simple machines is less than 100%. | |
| PHASE 3: REFLECTION | Use peer discussion and effective questioning to find out from learners what they have learnt during the lesson. Take feedback from learners and summarize the lesson. | |