SECOND TERM
WEEKLY LESSON NOTES
WEEK 5

Week Ending: 05-05-2023	**Day:**	**Subject:** Career Technology	
Duration: 60MINS		**Strand:** Technology	
Class: B8	**Class Size:**	**Sub Strand:** Simple Structures	
Content Standard: B8.4.1.1 Demonstrate understanding of application of principles of forces acting on structures.	**Indicator:** B8.4.1.1.1: Perform experiments of principles of forces on structures		**Lesson:** 1 of 2
Performance Indicator: Learners can perform experiments of principles of forces on structures		**Core Competencies:** CP 6.5: CI 5.4: CI 5.2: CI 6.10:	
Reference: Career Technology Curriculum Pg. 60			

Phase/Duration	Learners Activities	Resources
PHASE 1: **STARTER**	Revise with learners to review their understanding in the previous lesson. Share performance indicators with learners.	
PHASE 2: **NEW LEARNING**	Learners in their groups research for types of forces that can act on structural members in construction. *1. Compression: Compression is a force that tends to squeeze or compress a structural member, reducing its length. It is commonly seen in columns and beams that support loads from above.* *2. Tension: Tension is a force that tends to stretch or elongate a structural member, increasing its length. It is commonly seen in cables and suspension bridges.* *3. Shear: Shear is a force that tends to cut or slice through a structural member, causing it to bend or break. It is commonly seen in beams and girders that support loads from the sides.* *4. Bending: Bending is a combination of compression and tension that occurs when a structural member is subjected to a load that causes it to bend. It is commonly seen in beams, trusses, and arches.* *5. Torsion: Torsion is a twisting force that causes a structural member to twist or distort. It is commonly seen in shafts, axles, and bridges with curved decks.* *6. Fatigue: Fatigue is a type of force that occurs when a structural member is subjected to repeated cycles of stress over time. It can cause the material to weaken and eventually fail.* *7. Impact: Impact is a sudden force that occurs when a structural member is hit by a moving object. It can cause the material to deform or fracture.*	Pictures and charts of food

	Make sketches and notes of the types of forces acting on structural members. E.g., tension, compression, shear, torsion and bending Identify suitable resistant materials that can be used to perform the experiments: Forces acting on structural members. E.g., wood, metal, plastic, brick. Guide learners to perform experiments to show the following: - how tension force can force a member to 'stretch' *Tension is a force that tends to pull or stretch a structural member, increasing its length. When a structural member is subjected to a tensile force, the forces acting on the member are distributed along its length, causing it to elongate. This elongation occurs due to the separation of atoms or molecules within the material of the member, which allows it to stretch*. - how compression force can cause a member to 'squash' or 'buckle' *When a compressive force is applied to a member, the material within the member experiences a force that tries to compress it. This force is distributed along the length of the member, causing the material to deform and buckle if the compressive force is large enough. The amount of deformation and the load capacity of the member depend on its cross-sectional area, length, and material properties, such as its compressive strength*. - how shear force can cause a material to slide over each other. *When a structural member is subjected to a shear force, the forces acting on the member are parallel to the cross-sectional area of the member, causing it to deform and potentially fail. In a material, shear forces cause adjacent layers or particles to slide over each other, leading to deformation or failure of the material. The amount of deformation or failure depends on the magnitude of the shear force, the shape and size of the cross-sectional area of the member, and the properties of the material, such as its shear strength*. - how torsion force can cause a member to twist *When a torsional force is applied to a member, the material within the member experiences a force that tries to twist it around its longitudinal axis. This force is distributed around the cross-sectional area of the member, causing it to deform and twist if the torsional force is large enough. The amount of deformation and the load capacity of the member depend on its cross-sectional shape, size, and material properties, such as its torsional strength*. - how a bending force which acts at an angle to a member tends to make it bend Write their observations and discuss in class, in groups. <u>Assessment</u>	

	How can shear forces lead to failure in structural members, and what measures can be taken to prevent such failures? What is the difference between tension and compression forces, and how do they affect the behavior and design of structural members in construction?	
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. Ask learners how the lesson will benefit them in their daily lives.	

Week Ending: 05-05-2023	**Day:**	**Subject:** Career Technology	
Duration: 60MINS		**Strand:** Technology	
Class: B8	**Class Size:**	**Sub Strand:** Simple Structures	
Content Standard: B8.4.1.1 Demonstrate understanding of application of principles of forces acting on structures.	**Indicator:** B8.4.1.1.1.2: Design and make simple school technology projects		**Lesson:** 1 of 2
Performance Indicator: Learners can design and make simple school technology projects		**Core Competencies:** CP 6.5: CI 5.4: CI 5.2: CI 6.10:	
Reference: Career Technology Curriculum Pg. 60			
Phase/Duration	Learners Activities		Resources
PHASE 1: **STARTER**	Revise with learners to review their understanding in the previous lesson. Share performance indicators with learners.		
PHASE 2: **NEW LEARNING**	Take learners out of the classroom to identify simple school technology projects. E.g., see-saw, pushchair for babies, cantilever, beams, types of roof, mobile stage, bridge. Let learners explain reasons for choosing the project. E.g., availability of materials and tools, preference, skills Guide learners to identify suitable materials, tools and equipment for making the project. E.g., cardboard, empty tins, plastic bottles Learners in their groups prepare a folio for the project. Remind learners to follow the design process: Have learners display their projects to class for appreciation.		Pictures and charts of food

	Test and evaluate the project indicating the strengths and weaknesses. Make modifications where needed.	
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. Ask learners how the lesson will benefit them in their daily lives.	