THIRD TERM

WEEKLY LESSON NOTES – B8

WEEK 8

Week Ending: 18-08-2023	**DAY:**	**Subject:** Computing
Duration: 60mins		**Strand:** Computational Thinking
Class: B8	**Class Size:**	**Sub Strand:** Algorithm

Content Standard: B8.4.2.1.Analyse the correct step-by-step procedure in solving any real-world problem	**Indicator:** B8.4.2.1.1 Apply variables, expressions, assignment statements and operator precedence order (BODMAS rule) to process and store numbers and text in a programme	**Lesson:** 1 of 2

Performance Indicator: Learners can apply variables, expressions, assignment statements and operator precedence order (BODMAS rule) to process and store numbers and text in a programme	**Core Competencies:** CC8.2: CP6.1
Reference: Computing Curriculum Pg. 32	

Activities For Learning & Assessment	**Resources**	**Progression**
Starter (5mins) Revise with learners to review their understanding in the previous lesson. Review the concept of variables and their role in storing and manipulating data in a program. Ask learners to provide examples of situations where variables could be used. Share performance indicators and introduce the lesson. ***Main (35mins)*** Explain the concept of expressions in programming and their role in performing calculations and manipulating data. Discuss the operator precedence order (BODMAS rule) and how it determines the order of operations in an expression. Introduce the concept of assignment statements and how they are used to store the result of an expression in a variable. Provide learners with a set of arithmetic expressions that involve variables, numbers, and basic operators. In pairs or individually, ask learners to compute the expressions following the operator precedence order (BODMAS) and assign the results to variables.	Pictures and videos	Applying variables, expressions, assignment statements and operator precedence order (BODMAS rule) to process and store numbers and text in a programme

Instruct learners to write a program in a programming language of their choice that utilizes variables and assignment statements to store and print the results of the expressions computed in Activity 1.

Encourage creativity in formatting the output and adding appropriate text to enhance readability.

Assessment

1. What is the role of variables in programming, and why are they important?
2. Explain the concept of expressions and how they are used in programming.
3. What is the operator precedence order, also known as the BODMAS rule, and why is it important to follow?
4. Given the expression "3 + 2 * 4," what is the result following the BODMAS rule?
5. How are assignment statements used in programming, and what is their purpose?

Reflection ***(10mins)***

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/Project Work/Community Engagement Suggestions

Let learners in groups create complex formulas

Potential Misconceptions/Student Learning Difficulties

None

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Content Standard: B8.4.2.1.Analyse the correct step-by-step procedure in solving any real-world problem	**Indicator:** B8.4.2.1.1 Apply variables, expressions, assignment statements and operator precedence order (BODMAS rule) to process and store numbers and text in a programme	**Lesson:** 2 of 2

Performance Indicator: Learners can compute an expression following the operator precedence order (BODMAS) to exemplify how computers process input data to print out an answer	**Core Competencies:** CC8.2: CP6.1
Reference: Computing Curriculum Pg. 32	

Activities For Learning & Assessment	**Resources**	**Progression**
**Starter (5mins)** Revise with learners to review their understanding in the previous lesson. Share performance indicators and introduce the lesson. _**Main (35mins)**_ Reinforce the concept of operator precedence and how it determines the order of operations in an arithmetic expression. Discuss each component of the BODMAS rule: Brackets, Orders (exponents and roots), Division and Multiplication (from left to right), and Addition and Subtraction (from left to right). Explain the importance of following the correct order of operations to obtain accurate results. Provide learners with a set of arithmetic expressions that involve brackets, exponents, division, multiplication, addition, and subtraction. Demonstrate how computers process input data to print out an answer following the operator precedence order (BODMAS) _When a computer processes input data to print out an answer, it follows a series of steps to evaluate expressions and compute the result. Here's a high-level overview of how a computer would process the expression (4 + 6 * 2 - 8) / 3 and print out the answer:_ _1. Tokenization: The input expression is broken down into individual tokens or symbols, such as numbers, operators, and parentheses. In this case, the tokens are: (, 4, +, 6, *, 2, -, 8,), /, and 3._ _2. Parsing: The tokens are organized into a meaningful structure, typically using a parse tree or an abstract syntax tree (AST). The parse tree represents the hierarchical relationship between the tokens and their respective operators. For our expression, the parse tree would reflect the order of operations according to the operator precedence._	Pictures and videos	Applying variables, expressions, assignment statements and operator precedence order (BODMAS rule) to process and store numbers and text in a programme

*3. Evaluation: Starting from the root of the parse tree, the computer traverses the tree and evaluates each node based on the corresponding operator. The evaluation follows the operator precedence order (BODMAS) to ensure the correct computation. In our example, the computer would evaluate the multiplication first (6 * 2 = 12), then the addition (4 + 12 = 16), followed by the subtraction (16 - 8 = 8), and finally the division (8 / 3 = 2.6666...).*

4. Printing the result: Once the evaluation is complete, the computer obtains the final result (2.6666...) and converts it into a human-readable format, such as a string. The result can then be printed on the screen or stored in a variable for further use.

In pairs or individually, ask learners to compute the expressions following the operator precedence order (BODMAS) and write down their answers.

Facilitate a class discussion on the solutions obtained by learners for the arithmetic expressions.

Ask learners to explain their approaches and clarify any areas of confusion. Analyze any common errors made and provide guidance on how to correct them.

Assessment

1. What does the acronym BODMAS stand for, and what does it represent in arithmetic computations?
2. Provide an example of an arithmetic expression that involves brackets, exponents, division, multiplication, addition, and subtraction. Compute the expression using the BODMAS rule.
3. Why is it important to follow the correct order of operations when computing arithmetic expressions?
4. What happens when the BODMAS rule is not followed in computing an expression? Provide an example.
5. Explain the concept of error analysis when computing expressions using the BODMAS rule.

***Reflection** (10mins)*

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/Project Work/Community Engagement Suggestions

Let learners in groups create complex formulas

Potential Misconceptions/Student Learning Difficulties

None