LESSON DEVELOPMENT ONE

IDEAS OF TEMPERATURE

STAGE/TIME	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES – MIND/HANDS ON	LEARNING POINTS
Step 1 Introduction (5 minutes)	Introduces item like water heater, ice block, cold water, warm water, thermometer, etc. On thinking of hot and cold. Guides and asks the uses of these items. Thermometer is used to measure temperature – how hot or cold something is.	Water heater is used for heating water. Ice block is used to make cold water or minerals. Cold or Warm water bathing. Thermometer?	Linking the Previous knowledge to the new lesson
Step 2 Development (5 minutes) Grouping	1. Groups the learners into four groups – A, B, C, and D. 2. Guide the learners to choose a leader and secretary for your group. 3. Gives each group learning materials. – pencil, book, ruler, and study charts.	1. Belong to a group. 2. Choose their leader and secretary. 3. Received learning materials for their group.	Learner's group, leader and secretary confirmed.

Step 3 **Development** **(20 minutes)**	Lets the pupils the following pictures -  Asks – How will you describe each pictures as stated above? For example – 1. Boiling water in a kettle – very hot. 2. Water coming out of the tap –? 3. Rainfall –? 4. Family fanning themselves –? 5. A glass of cold water –? 6. Pupil swimming in a pool –? 7. Family surrounding a fireplace –? 8. A patient sick with fever –? 9. A bowl of hot custard –?	Response 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____	Oral Activity – hot or cold
Step 4 **Development** **(5 minutes)**	Lets the pupils describe how hot or cold each of the situation. Guides and lets them know	Each situation is either cold or hot. Temperature is the degree of hotness or coldness of an	Temperature

	that hot or cold describe temperature. That's, the degree of hotness or coldness of an object.	object.	
Step 5 Conclusion (5 minutes)	To conclude the lesson, the teacher revises the entire lesson and ask the key questions. 1. What is temperature? 2. What can we use to measure temperature?	The learners listen, ask and answer questions. ***Answers*** 1. Temperature is the degree of hotness or coldness of an object. 2. Thermometer	Lesson Evaluation and Conclusion

LESSON DEVELOPMENT TWO

MERCURY THERMOMETER AND CLINICAL THERMOMETER

STAGE/TIME	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES – MIND/HANDS ON	LEARNING POINTS
Step 1 Introduction (5 minutes)	1. What is temperature? 2. What can we use to measure temperature?	1. Temperature is the degree of hotness or coldness of an object. 2. Thermometer	Linking the Previous knowledge to the new lesson
Step 2 Development (5 minutes) Grouping	1. Groups the learners into four groups – A, B, C, and D. 2. Guide the learners to choose a leader and secretary for your group. 3. Gives each group learning materials. – pencil, book, ruler, warm, hot and cold water, and chart of thermometer or the real thermometer.	1. Belong to a group. 2. Choose their leader and secretary. 3. Received learning materials for their group.	Learner's group, leader and secretary confirmed.
Step 3 Development (10 minutes)	To measure temperature, we use a thermometer. When the temperature of an object changes, the liquid in	Pupils discuss and describe – 1. The uses of thermometer with one another in the group.	Different types of thermometer and their uses.

	the thermometer moves up or down. There are two types of thermometer – Mercury thermometer used to measure temperature of water, air and other liquid. Clinical thermometer is used to check the temperature of the body.	2. The movement of liquid in the thermometer (moves up and down). 3. Types of thermometer and their uses.	
Step 4 Development (20 minutes) Or	If thermometer is not available, let the pupils know that as the water get gradually, the liquid moves up until it reaches 100°C. As the water get freeze, the liquid moves down until it reaches 0°C. Guides and lets the pupils study the chart carefully and take the readings – Exercises on 187 and 188, New Method Mathematics	Listen to the teacher and ask questions if don't understand. Follow the example and attempt the following questions on 187 and 188, New Method Mathematics Book 5	Boiling and freezing points

	Book 5		
Step 4 **Development** **(20 minutes)**	Remember – the liquid in the thermometer moves up or down. Instructions – if real thermometer is available. 1. Put thermometer into warm or hot water. 2. Record the movement of liquid in the thermometer. 3. Put thermometer in the ice or cold water. 4. Record the movement of liquid in the thermometer. 5. State the movement of liquid in the thermometer when the water is gradually boil or freeze.	Pupil's Activities – 1. Hot water – The liquid moves up to 100°C. 2. Cold water – The liquid moves down to 0°C. 3. The more the water get boil, the liquid gradually move up until it reaches 100°C. 4. The more the water get freeze, the liquid gradually move down until it reaches 0°C.	Boiling and freezing points
Step 5 **Conclusion** **(5 minutes)**	To conclude the lesson, the teacher revises the entire lesson and ask the key questions.	The learners listen, ask and answer questions. ***Answers***	Lesson Evaluation and Conclusion

	1. What is the different between Mercury and Clinical thermometer. 2. Describe the movement of liquid in the thermometer at boiling or freezing points.	1. Mercury thermometer is used to measure liquid water, air and other liquid. While Clinical thermometer is used to measure temperature of the body. 2. The liquid moves up until it reaches 100°C and moves down until it reaches 0 °C.	

LESSON DEVELOPMENT THREE

RELATIONSHIP BETWEEN DEGREES CELSIUS AND DEGREES FAHRENHEIT

STAGE/TIME	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES – MIND/HANDS ON	LEARNING POINTS
Step 1 Introduction (5 minutes)	1. What is the different between Mercury and Clinical thermometer. 2. Describe the movement of liquid in the thermometer at boiling or freezing points.	1. Mercury thermometer is used to measure liquid water, air and other liquid. While Clinical thermometer is used to measure temperature of the body. 2. The liquid moves up until it reaches 100°C and moves down until it reaches 0 °C.	Linking the Previous knowledge to the new lesson
Step 2 Development (5 minutes) Grouping	1. Groups the learners into four groups – A, B, C, and D. 2. Guide the learners to choose a leader and secretary for your group. 3. Gives each group learning materials. – pencil, book, ruler, warm, hot and cold water, and chart showing degree Celsius.	1. Belong to a group. 2. Choose their leader and secretary. 3. Received learning materials for their group.	Learner's group, leader and secretary confirmed.

Step 3 **Development** **(5 minutes)**	Guides and lets pupils to know that temperature is measured in degrees Celsius (or centigrade) °C or degrees Fahrenheit (°F). Lets them study carefully, the relationship between degrees Celsius (or centigrade) °C or degrees Fahrenheit (°F) – $F = \frac{9C}{5} + 32$	Get to know the basic unit of temperature – degrees Celsius (or centigrade) °C or degrees Fahrenheit (°F).	Degree Celsius
Step 4 **Development** **(20 minutes)**	Guides pupils to convert these temperatures to degrees Fahrenheit – 1. The boiling point of water is at 100ºC. 2. The freezing point of water is at 0ºC. **Remember - °F = $\frac{9C}{5} + 32$**	Given, **$F = \frac{9C}{5} + 32$** ***Solution 1*** Boiling point of water is 100°C, **$°F = \frac{9C}{5} + 32$** Where C = 100 $°F = \frac{9 \times 100}{5} + 32 = \frac{900}{5} + 32$ $= 180 + 32$ Therefore, °F = 212° ***Solution 2*** The freezing point of water is	Conversion to Degrees Fahrenheit

		at 0ºC. **°F = 9C + 32** **5** Where C = 0ºC °F = 9 x 0 + 32 = 0 + 32 5 Therefore, °F = 32 °	
Step 5 Conclusion **(5 minutes)**	To conclude the lesson, the teacher revises the entire lesson and ask the key questions – assignment. Convert these temperatures to degrees Fahrenheit – 1. 35ºC 2. 25ºC	The learners listen, ask and answer questions.	Lesson Evaluation and Conclusion

LESSON DEVELOPMENT FOUR

RELATIONSHIP BETWEEN DEGREE FAHRENHEIT TO DEGREE CELSIUS

STAGE/TIME	TEACHER'S ACTIVITIES	LEARNER'S ACTIVITIES – MIND/HANDS ON	LEARNING POINTS
Step 1 **Introduction** **(10 minutes)**	Guides and lets pupils attempt assignment - convert these temperatures to degrees Fahrenheit – 1. 35ºC 2. 25ºC	Given, $°F = \frac{9C}{5} + 32$ ***Solution 1*** $°F = \frac{9 \times 35}{5} + 32$ $= = \frac{315}{5} + 32 = 63 + 32 = 90°$ Therefore, °F = 90° ***Solution 2*** $°F = \frac{9 \times 25}{5} + 32$ $= \frac{225}{5} + 32 = 45 + 32 = 77°$ Therefore, °F = 77°	Linking the Previous knowledge to the new lesson
Step 2 **Development** **(5 minutes)** **Grouping**	1. Groups the learners into four groups – A, B, C, and D. 2. Guide the learners to choose a leader and secretary for your group. 3. Gives each group learning materials. – pencil, book, ruler, and chart showing degree Fahrenheit.	1. Belong to a group. 2. Choose their leader and secretary. 3. Received learning materials for their group.	Learner's group, leader and secretary confirmed.

Step 3 **Development** **(5 minutes)**	Guides and lets pupils to know that temperature is measured in degrees Fahrenheit (°F) or degrees Celsius (°C). Lets them study carefully, the relationship between degrees Celsius (or centigrade) °C or degrees Fahrenheit (°F) – $°C = \frac{9}{5}(F - 32)$	Get to know the basic unit of temperature – degrees Fahrenheit (°F) or degrees Celsius (°C).	Degree Celsius
Step 4 **Development** **(15 minutes)**	Guides pupils to convert these temperatures to degrees Celsius – 1. 90° 2. 77°	Given, **$C = \frac{9}{5}(F - 32)$** ***Solution 1*** Given, $°C = \frac{9}{5}(F - 32)$ Where F = 90° $°C = \frac{9}{5}(90 - 32) = \frac{9 \times 58}{5}$ $= \frac{522}{5}$ Therefore, °C = 104.4° ***Solution 2*** Given, $°C = \frac{9}{5}(F - 32)$ Where F = 77° $°C = \frac{9}{5}(77 - 32) = \frac{9 \times 45}{}$	Conversion to Degrees Fahrenheit

		5 5 = 405 5 Therefore, °C = 81°	
Step 5 Conclusion **(5 minutes)**	1. To conclude the lesson, the teacher revises the entire lesson – To change the temperature from degrees Celsius to degrees Fahrenheit use this formula: °F = 9C + 32 5 The temperature from degrees Fahrenheit to degrees Celsius is given as °C = 9 (F – 32). 5 2. Asks the key questions – Assignment – Convert these temperatures to degrees Celsius – 1. 75ºC 2. 122ºC	The learners listen, ask and answer questions.	Lesson Evaluation and Conclusion