**AREAS TO BE EMPHASISED FOR**

**END OF CYCLE ASSESSMENT IN CHEMISTRY**

1. **THE LEARNER APPRECIATES CONTRIBUTION OF CHEMISTRY TO OUR ECONOMY**

ASSESSABLE AREAS

|  |  |  |
| --- | --- | --- |
| 1. *Manufacture of oxygen gas* 2. *Manufacture of chlorine gas* 3. *Extraction of metals(Na, Al, Fe, Cu, Zn)* 4. *Manufacture of fertilizers* 5. *Manufacture of detergents* | 1. *Manufacture of sodium hydroxide* 2. *Manufacture of sulphuric acid* 3. *Manufacture of cement* 4. *Manufacture of Ethanol* 5. *Manufacture of bio gas* | *Process involves*  ***V – vessel***  ***Cp – chemical processes***  ***Cd – conversion to desired product***  ***Ch – coherence***  ***Pr -purification*** |

**BASIS OF ASSESSMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| BASIS OF ASSESSMENT | | CRITERIA OF ASSESSMENT | SCORE |
| A | Raw materials Rm | All raw material | 02 |
| any one raw material | 01 |
| no raw material | 00 |
| B | Process of production Pp | Process of production with all V, Cp, Ch, Pr | 03 |
| Process of production with any three of V, Cp, Ch, Pr | 02 |
| Process of production with any one of V, Cp, Ch, Pr | 01 |
| No process of production | 00 |
| C | Side effects of the process of production and mitigation Se | Any one danger identified, explained and mitigated | 03 |
| Any one danger identified and explained OR identified and mitigated OR explained and mitigated | 02 |
| Any one danger identified OR explained OR mitigated | 01 |
| No danger identified, explained or mitigated | 00 |
| D | Social benefits Sb | Any one social benefit identified, effect of the benefit and impact of the benefit | 03 |
| Any one social benefit identified and effect of the benefit OR identified and impact of the benefit OR effect of the benefit and impact of the benefit | 02 |
| Any one social benefit identified OR effect of the benefit OR impact of the benefit | 01 |
| No social benefit identified | 00 |

1. **THE LEARNER APPRECIATES THE APPLICATION OF CHEMISTRY IN DAILY LIFE.**

ASSESSABLE AREAS

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **FOOD ADDITIVES** | | **DRUGS AND MEDICINE** | **NUCLEAR PROCESSES** | **DETERGENTS** |
| Flavour enhances  Preservatives  Glazing agents  Gelling agents  Glazing agents  Anti-oxidants  Bulking agents | Beverages  Dyes(food colours)  Stabilizers  Thickeners  Biological enzymes  Whitening agents  Firming agents | Antibiotics  (penicillin & streptrine)  Herbal medicine  (Trachtroul medicine)  Analgesics  (aspirin, paracetamol codeine) | Nuclear fission  Nuclear fusion  Nuclear decay and half life | Soapy detergents  Soapless detergent |

**BASIS OF ASSESSMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| BASIS OF ASSESSMENT | | CRITERIA OF ASSESSMENT | SCORE |
| A | Category/type of product | Any one product, reason and category/type of product identified | 03 |
| Any two identified | 02 |
| no product nor category/type of product identified and example | 00 |
| B | Function(s) of product(s) | Anyone function of product(s) | 01 |
| No function of the product(s) | 00 |
| C | Dangers or Side effects of the product and mitigation | Any one danger/side effect identified explained and mitigated | 03 |
| Any one danger/side effect identified explained and mitigated | 02 |
| Any one danger/side effect identified and explained OR explained and mitigated | 01 |
| No danger/side effect identified OR mitigated | 00 |
| D | Evaluation of products/processes | Evaluation of products/processes basing on both similarities and differences | 02 |
| Evaluation of products/processes basing on either similarities OR differences | 01 |
| No evaluation of products/processes | 00 |

1. **THE LEARNER APPRECIATES DIVERSITY AND INTERACTIONS OF SUBSTANCES AND THEIR IMPORTANCE IN LIFE.**

ASSESSABLE AREAS

|  |  |
| --- | --- |
| 1. Elements, compounds and mixtures 2. The periodic table 3. Trends in the periodic table 4. Reactivity series | 1. Structure and bonds 2. The mole concept 3. Materials other than plastics 4. Polymers and Plastics |

**BASIS OF ASSESSMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| BASIS OF ASSESSMENT | | CRITERIA OF ASSESSMENT | SCORE |
| A | Category of element, compound, substance or material with a reason | Identified category of element, compound, substance or material with a reason and example | 03 |
| Identified category of element, compound, substance or material with either example OR reason | 02 |
| Identified category of element, compound, substance OR material OR reason only OR example only | 01 |
| No identified category of element, compound, substance OR material OR reason OR example | 00 |
| B | Properties or prediction of properties of element, compound, substance OR material | At least four properties or characteristics or predictions of trends | 03 |
| At least two properties or characteristics or predictions of trends | 02 |
| Any one property or characteristic or prediction of trends | 01 |
| No property or characteristic or prediction of trends | 00 |
| C | Uses of element, compound, substance or material/applications/ quantity of matter i.e moles | Any one use/application | 01 |
| No use/ application | 00 |
| D | Impact/ pollution of environment by element, compound, substance or material and mitigation | Identified impact and mitigation | 02 |
| Identified impact OR mitigation | 01 |
| No Identified impact OR mitigation | 00 |

1. **THE LEARNER APPRECIATES THE EXISTENCE OF NATURAL RESOURCES IN THE ENVIRONMENT AND THEIR IMPORTANCE IN EVERYDAY LIFE**

ASSESSABLE AREAS

|  |  |
| --- | --- |
| 1. Air 2. Water 3. Rocks and mineral resources | 1. Carbon based fuels 2. Fossil fuels |

**BASIS OF ASSESSMENT**

|  |  |  |  |
| --- | --- | --- | --- |
| BASIS OF ASSESSMENT | | CRITERIA OF ASSESSMENT | SCORE |
| A | Identity of category of natural resource, reason and example | Identified category of natural resource with a reason and example | 03 |
| Identified category of natural resource with a reason  OR  Identified category of natural resource with example | 02 |
| Identified category of natural resource OR example | 01 |
| No identified category of natural resource | 00 |
| B | Composition of natural resource | Any two components of natural resource | 02 |
| Any one component of natural resource | 01 |
| No component of natural resource | 00 |
| C | Impact of the natural resource on the environment, how it occurs, and mitigation | Anyone Impact of the natural resource on the environment, how it occurs, and its mitigation | 03 |
| Anyone Impact of the natural resource on the environment and how it occurs OR Anyone Impact of the natural resource on the environment, and its mitigation | 02 |
| Anyone Impact of the natural resource on the environment OR how it occurs OR its mitigation | 01 |
| No Impact of the natural resource on the environment, how it occurs, and its mitigation | 00 |
| D | Benefit/importance of natural resource | Any one benefit/importance of natural resource | 01 |
| No benefit/importance of natural resource | 00 |

**THE LEARNER UNDERSTANDS THAT CHEMISTRY IS A PROCESS OF EVIDENCE-BASED ENQUIRY INVOLVING THE COLLECTION OF EVIDENCE AND THE DEVELOPMENT OF THEORIES THAT HELP US EXPLAIN THE EVIDENCE**

**(SCIENCE PROCESS SKILLS)**

**BASIS OF ASSESSMENT**

|  |  |  |
| --- | --- | --- |
| **Basis of assessment** | **Assessment criteria** | **Scoring** |
| **Aim of the experiment** | * Aim of experiment with both key words * Aim of experiment with one key word * No aim of the experiment | **02**  01  00 |
| **Variable for the experiment** | * Independent, dependent and controlled * Independent and dependent or independent and controlled or dependent and controlled variable * Independent or dependent or controlled variable * No variable | **03**  02  01  00 |
| **Hypothesis** | * Hypothesis related to experiment with both key words * Hypothesis related to experiment with one of key words * No / wrong hypothesis of the experiment | **02**  01  00 |
| **Procedure of the experiment** | * Relevant material, relevant procedure, coherent procedure of the experiment * Relevant materials and procedure * Either relevant material or relevant procedure * No relevant material and procedure | **03**  02  01  00 |
| **Risks and mitigations** | * Any one risk identified and mitigated * Any one risk identified or mitigated * No risk identified or mitigated | **02**  01  00 |
| **Presentation of data** | * 2/3 of required sets of data appropriately presented * 1/3 of required sets of data appropriately presented * Data appropriately presented without required sets * Data partially appropriately presented without required sets * No set of data presented | **04**  03  02  01  00 |
| **Recording of data** | * Appropriate recording of data within the error margin * Partial appropriate recording of data within the error margin * Appropriate recording of data outside the error margin * Partial appropriate recording of data outside error margin * No data recorded/ data recorded outside error margin | **04**  03  02  01  00 |
| **Data analysis and interpretation** | Method used is:   * Appropriate and accurate * Appropriate and partially accurate * Appropriate and inaccurate * Inappropriate and inaccurate | **03**  02  01  00 |
| **Conclusion** | Conclusion based on data interpretation  No conclusion based on data interpretation | **01**  00 |

PRACTICAL ASSESSABLE AREAS

|  |  |
| --- | --- |
| * Chemical reaction rates * Energy changes during chemical reactions * Formulae, stoichiometry and mole concept | * The reactivity series * Solubility of Salts * Soapy detergents and hardwater |