NAME: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE DUE: \_\_\_\_\_\_\_\_\_\_\_\_

TEACHER: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**/45**

**Year 9 Term 1 – Chemistry**

**HOMEWORK SHEET No. 2 – Learning Goal 2**

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| /6 | **1. Write definitions for the following terms:**  (a) molecule:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (b) compound:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (c) chemical reaction:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (d) product:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (e) reactant:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  (f) chemical equation:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| /7 | **2. Label the following as physical change (P) or chemical reaction (C)** | |
| 1. Burning Leaves \_\_\_\_ 2. Cutting Diamonds \_\_\_\_ 3. Crushing a pencil \_\_\_\_ 4. The salivary amylase enzyme that breaks down food in the mouth \_\_\_\_ 5. Salt mixing in with water \_\_\_\_ 6. Shattering Glass with a baseball \_\_\_\_ 7. Corroding Metal \_\_\_\_ | 1. Fireworks Exploding \_\_\_\_ 2. Lighting a match \_\_\_\_ 3. Painting a wall blue \_\_\_\_ 4. A bicycle rusting \_\_\_\_ 5. Ice cream melting \_\_\_\_ 6. Scratching a key across a desk \_\_\_\_ 7. Baking a cake \_\_\_\_ |
| /1 | **3. Identify the essential difference between physical changes and chemical reactions?**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
| /5 | **4. List the five key indicators that a chemical reaction has occurred?**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |

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| /6 | **5. Label the reactants and products in this chemical reaction:**  **C6H12O6  +  6O2  →  6CO2   +   6 H2O**  (a) Circle and label the **subscript** and **coefficient** for the molecule of oxygen in the above equation:  (b) How many atoms of oxygen are present on each side of the equation shown in question?    (c) Chemical reactions must have equal numbers of each atom on each side to satisfy the Law of  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_\_\_\_. |
| /14 | **6. Balance each of these chemical equations and (ii) OPTIONAL classify each as either synthesis, decomposition, single replacement, double displacement, or combustion.**   * 1. \_\_\_\_ P4 + \_\_\_\_ O2 🡪 \_\_\_\_ P2O3 Classification:   2. \_\_\_\_ Al + \_\_\_\_ HCl 🡪 \_\_\_\_ H2 + \_\_\_\_ AlCl3 Classification:   3. \_\_\_\_ Pb(OH)2 + \_\_\_\_ HCl 🡪 \_\_\_\_ H2O + \_\_\_\_ PbCl2 Classification:   4. \_\_\_\_ N2 + \_\_\_\_ H2 🡪 \_\_\_\_ NH3 Classification:   5. \_\_\_\_ CH4 + \_\_\_\_ O2 🡪 \_\_\_\_ CO2 + \_\_\_\_ H2O Classification:   6. \_\_\_\_ KCl 🡪 \_\_\_\_ K + \_\_\_\_ Cl2 Classification:   7. \_\_\_\_ Na3PO4 + \_\_\_\_ CaCl2 🡪 \_\_\_\_ NaCl + \_\_\_\_ Ca3(PO4)2 Classification: |
| /6 | **7. (a) Define the terms exothermic reaction and endothermic reaction.**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **(b) Why do some reactions release heat (exothermic) yet others require heat (endothermic)?**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  **(c) Given a chemical equation (like the ones on Q 6 above), how do you recognise a exothermic or endothermic reaction?**  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |