**e-RPH Science Form 1**

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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.1 Science is Part of Daily Life | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Relate daily activities to Science 2. Generalise the meaning of Science 3. Summarise the importance of Science in everyday life | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher shows some examples of daily activities and natural phenomena using PowerPoint slides. 2. The teacher uses the Dragon Ball technique to ask questions that focus on the meaning of Science and the importance of Science in daily life based on the pictures shown. | | | |
| **Activities:**   1. The leader of each group will record the answers from the students who got the ball in the form of a circle map. 2. At the end of the Dragon Ball session, each group will discuss the meaning of Science and the importance of Science based on the answers given earlier. 3. The teacher will choose one group to present the results of their discussion and the other group will give their opinions. 4. The teacher guides the students to get the correct definition. | | | |
| **Closing:**  Students answer the questions on page 39. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ students can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students need further exercises and teacher’s guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
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| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.1 Science is Part of Daily Life | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Describe the fields of Science 2. Communicate about careers in Science 3. Relate subjects to be studied with Science careers of interest | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher asked the students to observe Biology, Physics and Chemistry in the Form 1 Science Textbook. 2. The teacher introduces other fields of science such as zoology, astronomy, microbiology, geology, physiology, botany, engineering, pharmacology, oceanography, forensics and so on. 3. Teachers conduct Hot Seat activities. The teacher asks each group to choose a career from the fields that have been discussed earlier. | | | |
| **Activities:**   1. Each group will collect information related to the chosen career through the Internet or printed materials and choose a representative to act as an expert. 2. The chosen expert will sit on a chair at the front of the class and will answer all the questions asked by the other groups regarding the chosen career. For example, like what he is doing, what field of Science does the career involve, what subjects should be studied for that career and so on. Other groups will record the information in the form of a circle map. | | | |
| **Closing:**  Students answer the questions on page 40. | | | |
| **REFLECTION** | | | |
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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.2 Your Science Laboratory | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Identify and state the functions of the apparatus 2. Draw and label apparatus commonly used in the laboratory and classify based on how it is used | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher placed six different laboratory apparatus on each table. 2. The teacher conducts the Who Am I activity. | | | |
| **Activities:**   1. Students are asked to identify and draw the apparatus and find its function. 2. The teacher called a student forward and pinned the name of an apparatus on the back of the student shirt. 3. The student is given the opportunity to ask other friends about the features and functions of the apparatus pinned on his back. 4. Other friends are only allowed to answer 'yes' or 'no' only. 5. If the student can guess the name of the appratus behind it then a reward will be given. | | | |
| **Closing:**  Students answer the questions on pages 41 and 42. | | | |
| **REFLECTION** | | | |
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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.2 Your Science Laboratory | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Identify symbols and examples of hazardous materials in the laboratory | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher pastes warning symbols around the laboratory. 2. The teacher instructs the students to find and identify the warning symbols that have been pasted. 3. The teacher distributes a mini whiteboard and a marker pen to each group. 4. The teacher then conducts Guess and Win activities. 5. The teacher shows warning symbols using flash cards. | | | |
| **Activities:**   1. Students have to write the name of the warning symbol and an example of a hazardous substance that uses the symbol on the white board. 2. Students show their answers without making a sound. 3. If the voice is heard, the mark will be rejected. 4. The group that gives the most accurate and fastest answers is the winner. | | | |
| **Closing:**  Students answer the questions on page 42. | | | |
| **REFLECTION** | | | |
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| **DAILY LESSON PLAN** | | | |
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| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.2 Your Science Laboratory | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Justify the regulations and safety measures in the laboratory | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher calls a student forward and is given a card that asks the student to act out a situation related to the rugulations and safety measures in the laboratory. | | | |
| **Activities:**   1. Other students from the same group will guess the action. Points are given if the guess is correct. 2. Next, a student from another group will be called forward and act out the given situation. This process is repeated until all groups are completed. 3. The students then jot down all the situations that were acted out earlier and evaluates whether the situations are wrong or not if it is done in the laboratory and what is the effect on the students. | | | |
| **Closing:**  Students answer the questions on page 43. | | | |
| **REFLECTION** | | | |
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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.3 Physical Quantities and Their Units | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Identify and use the correct units for different physical quantities 2. Identify the symbols and values of prefixes use in measurement | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher explains before the students carry out the Mix and Match activity. 2. The teacher gives each student a flash card that contains information on basic quantities, SI units and symbols. | | | |
| **Activities:**   1. Students are asked to find flash cards that match the flash cards they have. For example, if a student is holding a flashcard that says 'time', then he needs to find a flashcard that says 'saat' and 's'. 2. The student who is the fastest to find the matching flashcard will be rewarded. 3. After that, each student is given a flash card that contains the suffix, symbol, value and standard form of the suffix. 4. Students are asked to find flash cards that match the flash cards they have. For example, if a student is holding a flashcard that says 'mega' then he needs to find a flashcard that says 'M', a flashcard that says '1000000' and a flashcard that says '106 '. | | | |
| **Closing:**  Students answer the questions on page 44. | | | |
| **REFLECTION** | | | |
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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.4 The Use of Measuring Instruments, Accuracy, Consistency, Sensitivity and Errors | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Use the right measuring instrument and use it in the right way, to measure accurately and consistently the quantities of length, mass, time, temperature and electric current | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher shows the correct way to use measuring instruments such as ruler, measuring tape, thermometer, stopwatch, ammeter, voltmeter and measuring cylinder. | | | |
| **Activities:**   1. Each group is given a ruler, measuring tape, thermometer, stopwatch, ammeter, voltmeter and measuring cylinder. 2. Students are asked to carry out the activity on page 45. 3. After the measurement, students compare the group's findings with other groups. If there is a significant discrepancy, students will discuss the reasons. | | | |
| **Closing:**  Students answer the questions on page 46. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ students can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students need further exercises and teacher’s guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because  :  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

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| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.4 The Use of Measuring Instruments, Accuracy, Consistency, Sensitivity and Errors | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Use measuring instruments with higher accuracies to compare the measurements in terms of accuracy, consistency and sensitivity | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher shows the correct way to use a vernier calipers, micrometer screw gauge, clinical thermometer, three-bar balance, digital vernier caliper, digital micrometer screw gauge, digital thermometer and digital scale. | | | |
| **Activities:**   1. Each group is provided with the instruments. 2. The students are asked to carry out the activity on page 47. | | | |
| **Closing:**  Students answer the questions on page 48. | | | |
| **REFLECT SI** | | | |
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| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.4 The Use of Measuring Instruments, Accuracy, Consistency, Sensitivity and Errors | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Explain how to overcome systematic errors and random errors | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher shows two pictures (one picture of random error and another picture of systematic error). 2. The teacher asks the students to distinguish the two pictures and identify the zero error and the parallax error. | | | |
| **Activities:**   1. The students build a suitable i-Think map to distinguish between the two errors and how to overcome them. 2. The students answer the discussion questions on page 49. 3. The teacher guides the students to determine the zero error on vernier calipers and micrometer screw gauge. | | | |
| **Closing:**  Students answer the questions on page 50. | | | |
| **REFLECTION** | | | |
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| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.4 The Use of Measuring Instruments, Accuracy, Consistency, Sensitivity and Errors | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Estimate the length, area, mass or volume of an object before taking actual measurements | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher gives an explanation before the students carry out the Stationary Activity. 2. Students are divided into 4 stations.   Station 1: Estimate length using paper clips.  Station 2: Estimate area using graph paper.  Station 3: Estimate the mass of 100 sheets of A4 paper.  Station 4: Estimating volume using the water displacement method. | | | |
| **Activities:**   1. Students carry out the activities on page 51 according to the designated stations. 2. Then students will move to the next station after completing the task at the first station. 3. The session ends after all students have carried out the activities in all four stations. 4. Students fill in the results from the activities in all four stations on pages 52 – 53. | | | |
| **Closing:**  Students answer the questions on pages 53 – 54. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ students can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students need further exercises and teacher’s guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

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| **DAILY LESSON PLAN** | | | |
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| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.5 Density | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Arrange sequentially materials based on density 2. Predict whether the materials will float and sink according to density 3. Define operational definition of density 4. Calculate density using formula () and water displacement method | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher shows four objects (rubber duck, coin, distilled water, cooking oil). | | | |
| **Activities:**   1. The teacher asks a student to come forward to pour water and oil into a 1 000 ml measuring cylinder followed by a rubber duck and a coin. 2. The teacher asks some questions to help students define density. 3. The teacher asks the students to arrange the materials in the measuring cylinder according to their density. | | | |
| **Closing:**  Students answer on page 56. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ students can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students need further exercises and teacher’s guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because  :  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

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| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.5 Density | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Calculate density using formula () and water displacement method | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher told about a Greek scientist named Archimedes who got inspiration while he was taking a bath and discovered the method of water displacement to find the density of gold. | | | |
| **Activities:**   1. The teacher shows the water displacement method to determine the density of 1 cm3 of lead cube. 2. Students carry out the activity on page 57. | | | |
| **Closing:**  Students answer the questions on page 57. | | | |
| **REFLECTION** | | | |
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| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.6 Steps in Scientific Investigation | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Differentiate each science process skill 2. Make a sequence on the steps of carrying out a scientific investigation in the correct order 3. Conduct a scientific investigation to solve a simple problem | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher uses Eksperimen Wajib 1 as PBD material. 2. The teacher asks the students to do the activity on page 6. 3. The teacher guides students to write the experimental methods. | | | |
| **Activities:**   1. Students are asked to fill in the results obtained in the table on page 7. 2. The teacher guides the students to plot a graph. Students are asked to discuss the findings of their respective experiments in groups. 3. Students are asked to discuss the findings of their respective experiments in groups. 4. Students are asked to present their findings in front of the class. Students from other groups can correct the mistakes if any and give constructive comments. 5. Students are asked to answer the questions on page 8. | | | |
| **Closing:**  Students write an experiment report. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ students can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students need further exercises and teacher’s guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

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| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Scientific Methodology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Scientific Investigation | **DAY** |  |
| **TITLE** | 1.7 Scientific Attitude and Values in Scientific Investigation | **TIME** |  |
| **LEARNING OBJECTIVE** | | | |
| At the end of PdPc, students can:   1. Support scientific attitudes and values practiced by scientists 2. Justify the need to practice scientific attitudes and values when carrying out an investigation | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The teacher gives an explanation before the students carry out the Musical Chair activity. 2. The teacher distributes cards containing a moral value or scientific attitude to different students. | | | |
| **Activities:**   1. Students who get cards are asked to come forward and show their respective cards to other students. 2. The teacher will play music and the students who hold the cards have to move and divide into two groups either the value group or the scientific attitude group. 3. The teacher stops the music and the students are asked not to move. 4. Other students are asked to see if their friends are in the right group. | | | |
| **Closing:**  Students who are in the right group will get a reward. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ students can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ students need further exercises and teacher’s guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |