**e-RPH BIOLOGY FORM 4**

|  |  |  |  |
| --- | --- | --- | --- |
| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Fundamentals of Biology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Biology and Laboratory Rules | **DAY** |  |
| **TITLE** | Fields of Biology and Careers | **TIME** |  |
| **LEARNING OBJECTIVES** | | | |
| At the end of PdPc, pupils can:   1. List four fields of biology. 2. Describe five careers in biology. | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The pupils and teachers carry out Questions and Asnwers (Q & A) session to test the level of pupils' basic knowledge. 2. The pupils pay attention to the teacher's explanation about the field of biology and careers. | | | |
| **Activities:**   1. In groups, the teacher asks the pupils to make a multimedia presentation about:   (a) the field of biology and technology related to biology.  (b) the contribution of biologists, the development of biological technology in everyday life.   1. The pupils search for information, discuss and present information in the form of Microsoft PowerPoint. 2. The pupils present their findings in class. | | | |
| **Closing:**  The pupils answer questions 1 - 4 in the Target PBD Biology Form 4 book pages 1 – 2. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils need further exercises and teacher guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Fundamentals of Biology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Biology and Laboratory Rules | **DAY** |  |
| **TITLE** | Safety and Regulation in Biological Laboratories | **TIME** |  |
| **LEARNING OBJECTIVES** | | | |
| At the end of PdPc, pupils can:   1. Explain with examples five personal protective equipment and their functions. 2. Explain with examples five laboratory safety equipment with their functions. 3. Classify substances that can be disposed into the sink and substances that cannot be disposed into the sink. 4. Explain the methods for managing biological waste. 5. Describes steps to handle general chemical spills in the laboratory. 6. State three practices in a biology laboratory. | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The pupils listen to the teacher's explanation about safety and rules in the laboratory. 2. The pupils and teachers carry out Questions and Answers (Q & A) session to test the level of pupils' basic knowledge. | | | |
| **Activities:**   1. In groups, the teacher asks the pupils to prepare a multimedia presentation about:    1. Personal protective equipments and their functions.    2. Biological waste materials and identify Standard Operating Procedures to manage the waste materials.    3. Measures to handle chemical and mercury spills.    4. Laboratory safety on dress code, safety symbols, fire safety rules, handling of glassware and chemicals and live specimens.    5. The importance of practices in scientific attitudes and noble values when conducting scientific investigations. 2. The pupils search for information, discuss and present information in the form of Microsoft PowerPoint. 3. The pupils present the results of the discussion in class. | | | |
| **Closing:**  The pupils answer questions 1 - 6 in the Target PBD Biology Form 4 book pages 2 – 4. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils need further exercises and teacher guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Fundamentals of Biology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Biology and Laboratory Rules | **DAY** |  |
| **TITLE** | Tables and Graphs | **TIME** |  |
| **LEARNING OBJECTIVES** | | | |
| At the end of PdPc, pupils can:   1. Construct tables and graphs. | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The pupils listen to the teacher's explanation about tables and graphs. | | | |
| **Activities:**   1. The teacher gives a table and a graph for pupils to examine their characteristics. 2. The teacher asks the pupils to identify and describe the characteristics based on the table and graph given. 3. In pairs, the pupils take turns responding to the given task. | | | |
| **Closing:**  The pupils answer the questions 1 – 2 in the Target PBD Biology Form 4 book page 5. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils need further exercises and teacher guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Fundamentals of Biology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Biology and Laboratory Rules | **DAY** |  |
| **TITLE** | Biological Drawings, Plane, Section and Direction of an Organism | **TIME** |  |
| **LEARNING OBJECTIVES** | | | |
| At the end of PdPc, pupils can:   1. Draw a biological drawings. 2. Identify plane, section and direction of an organism. | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The pupils listen to the teacher's explanation about biological drawings as well as plane, section and direction of an organism. | | | |
| **Activities:**   1. By using biological drawings, the pupils are asked to identify the characteristics of biological drawings and also discuss about plan drawing and detailed drawing. 2. By using organisms such as mice and tomatoes, the pupils identify plane, section and direction of an organisms. | | | |
| **Closing:**  The pupils answer questions 3 – 4 in the Target PBD Biology Form 4 book pages 5 – 6. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils need further exercises and teacher guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **DAILY LESSON PLAN** | | | |
| **CLASS** |  | **WEEK** |  |
| **THEME** | Fundamentals of Biology | **DATE** |  |
| **CHAPTER** | 1.0 Introduction to Biology and Laboratory Rules | **DAY** |  |
| **TITLE** | Scientific Investigations in Biology | **TIME** |  |
| **LEARNING OBJECTIVES** | | | |
| At the end of PdPc, pupils can:   1. Give nine steps in carrying out a scientific investigation. | | | |
| **TEACHING AND LEARNING ACTIVITIES** | | | |
| **Introduction:**   1. The pupils listen to the teacher's explanation of the steps in carrying out a scientific investigation. | | | |
| **Activities:**   1. The pupils carry out activities in groups. 2. Each group was given a task to design an experiment to solve a problem by using   steps in carrying out a scientific investigation in front of the class. | | | |
| **Closing:**  The pupils answer question 1 in the Target PBD Biology Form 4 book page 7. | | | |
| **REFLECTION** | | | |
| \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can achieve the set learning objectives.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils can complete the exercises given.  \_\_\_\_\_\_ / \_\_\_\_\_\_ pupils need further exercises and teacher guidance.  Note: Teaching and learning cannot be carried out today and will continue in the next learning session because:  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |