**EMERALD ROYAL INT’L SCHOOL**

**LESSON PLAN/NOTE FOR WEEK 6 ENDING: 9TH JUNE, 2023**

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| **Term** | 3rd |
| **Week** | 6 |
| **Date** | 09/06/2023 |
| **Class** | SSS 2 |
| **Subject** | Physics |
| **Topic** | Concept of fields |
| **Sub-topic** | Magnetic fields |
| **Period** | 3 |
| **Time** | 09:20-09:55 |
| **Duration** | 35minutes |
| **Number in class** | 2 |
| **Average age** | 14years |
| **Sex** | Mixed |
| **Specific objectives** | By the end of the lesson, the students should be able to:   1. Describe the pattern of a magnetic field. 2. Explain the methods of making a magnet. 3. Explain two methods of demagnetization, |
| **Rationale** | To enable the students understand the magnetic field. |
| **Previous knowledge** | Students should have been taught on the concept of fields. |
| **Instructional aid** | One guide sheet for each student, a magnet, lesson note and a text book. |
| **Reference** | * M.W. Anyakoha. New school physics for secondary schools. Africana first publishers PLC. page 423-435 * P.N. Okeke. Macmillan Senior Secondary Physics. Pearson. Page 256-261 |

**LESSON DEVELOPMENT**

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| **STEPS** | **TEACHER’S ACTIVITIES** | **STUDENTS’ ACTIVITIES** | **LEARNING POINTS** |
| **Introduction** | The teacher introduces the lesson by explaining that magnetic lines of Force are imaginary lines along which a free North pole would tend to move if placed in the field. A line of force may also be considered as a line such that the tangent to it at any point gives the direction of the field at that point. | The students will use the magnetic lines of force to describe the magnetic field. | To give the students a rudimentary the pattern of magnetic field |
| **Step I** | *Patterns of magnetic field*  Magnetic field patterns can conveniently be observed using iron filings. The magnet is placed on paper and the iron filings are sprinkled lightly on the paper around the magnet. The paper is now tapped gently and the iron filings will be seen to turn and settle in definite directions. | Begin to develop an idea on the pattern of magnetic field | To ensure proper understanding of the lesson. |
| **Step II** | *Methods of making a magnet*  The following methods are used in making a magnet;   1. Electrical method: the best and quickest method of making magnets, which is also the industrial method, is by the electrical method. Here we utilize the magnetic effect of an electric current. The material to be magnetized is inserted inside a solenoid, the ends of the coils of which are connected to a circuit. The current is switched on for a few seconds and then switched off. On testing, the specimen will be found to be magnetized 2. The contact method: the specimen (e.g. a soft iron bar) is placed on the bench. The needle is then stroked along its length with one end of a bar magnet. The magnet is kept in an inclined position and dragged along the specimen from one end, A, to the other, B, and lifted well away from the specimen and brought again to A. the process is repeated several times. | The students listen attentively the teacher’s explanation. | To ensure that all the students are carried along. |
| **STEP III** | *Demagnetization*  Demagnetization is the process whereby a magnet is made to lose its magnetism. Demagnetization can be achieved by;   1. Electrical method: the magnet is placed in a solenoid through which an alternating current (a.c) is flowing. The solenoid is placed with its axis pointing in an east-west direction. After a few seconds, the magnet is slowly withdrawn out of the solenoid to a long distance away. The rapid reversal in direction of the alternating current causes the material to reverse in polarity several times in a second. His process demagnetizes the magnet.   Electrical method is the most efficient way of demagnetizing a magnet.   1. Mechanical method: another method of demagnetizing magnets is to hammer them hard when they are pointing in an East-West direction. 2. Heating method: when magnets are strongly heated, they lose their magnetism. | The students listen attentively to the teacher’s explanation. | Consolidate acquired knowledge on magnets. |
| **Summary** | Magnetic lines of force are imaginary lines along which a free north pole would tend to move if placed in the magnetic field.  Magnets are made by the electrical method and contact method | The students listen attentively to the teacher’s explanation. | For reference purpose. |
| **Evaluation** | The teacher evaluates the students by giving the students the following classwork.  Draw the lines of force due to a bar magnet placed in the Earth’s magnetic field with the north pole pointing north. | The students answer the question in their science notebook. | To ascertain the students level of understanding of the lesson. |
| **Conclusion** | The teacher makes correction of the classwork. | The students copy the correction in their exercise books. | For reference purpose |
| **Assignment (Homework)** | The teacher gives the students the following assignment.  What is the difference between the magnetic properties of steel and iron? Which of them is more suitable for making (i) permanent magnets (ii) electromagnets. Give your reasons. | The students copy the questions into their exercise books. | To encourage critical thinking of students at home. |



20/7/2023

Principal Head Instuctor