|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Teacher’s Name: | |  | | | | | | GRADE: 12A | | | 12 cluster(d) | | | | | UNIT:3 | | | 12 | | DATE: | |  | | | |
| TEXTBOOK and PAGE NUMBER  Text book Cambridge International Mathematics page (372-375-383)& (400-401-390-391) | | | | | | | | | | | | | | | | LESSON TITLE | | | | | | | | | | |
| ***CURRICULUM STANDARDS*:(12A.(13.1**  Use vectors in up to three dimensions; identify the components of the  vector in relation to three orthogonal directions; use unit vectors ***i***, ***j*** and ***k*** in these directions; use column matrix form for vectors, including unit vectors; use the notation AB to denote the vector from point A to point B; use and understand the terms *position vector* and *displacement vector*  . | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ***NPST:***  *(National Professional Standards for Teachers)* | **✓ 1** | | | **2** | | | **✓ 3** | | **4** | **✓ 5** | | **6** | **7** | | **8** | | **✓ 9** | | | **10** | | | | **11** | **12** | |
| **LESSON OBJECTIVE:** In the end this lesson the students able to:   1. Identify vectors and scalars 2. Write vectors as component form and unit **vectors form , unit vector , use the notation AB** 3. **Determine the position vector , displacement vector** | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **KEY VOCABULARY:**  ***.***  \*vector \*scalar  \*component form –\* unit vector form-  -\* position vector – displacement vector | | | | | | | | | | | | | **RESOURCES:  *The main resources needed for the lesson:***   |  |  |  | | --- | --- | --- | | *Whiteboard* **✓** | *OHP/data show* **✓** | *Manipulative ❒* | | *Textbook* **✓** | *Internet/websites ❒* | *Demonstration*  *Tools ❒* | | *PowerPoint* **✓** | *Calculators* | *Worksheet*  *Handouts* **✓** | |  | | | | | | | | | | | | | | | | |
| **STARTER**  8 minutes | | | **Let Ss to watch the video about Introduction for the meaning of two quantities scalars and vectors \***  1. Scalar quantitie**s**  **Are quantities that have only magnitudes such as time, area and distance.**  2 . Vector quantities: **Are quantities that have both magnitudes and directions such as velocity ,force and** acceleration. <http://www.bing.com/search?q=www.+youtub+%28vectors%29&src=IE-SearchBox&FORM=IE8SRC> | | | | | | | | | | | | | | | | | | | | | | | |
| **MAIN ACTIVITY :**  **This lesson (Two Plock)**  40 minutes | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TEACHER’S ROLE:-**  Step (1***)*** *Give Ss some question from( internet on line )to determine the difference between scalar and vector*  *Step (2)Tt discuss and explain for Ss that any vector could be represented as*   * ***It write as OA or a or a as vector*** * ***It write as | OA| or | a | or | a | as magnitude or length***   *Step (3)* ***Tt explain for SS how to write the vector in component form and unit vector form and length***  *Definition: If a=  in (component form)*  *Where: a =a1 i + a2 jin(unit vector form)*  *Then The Length of a Vector = =*  **In 3 D |a|=**  *Unit vector –vector has length one*  Step (4) *Ask Ss* ***how can write the vectors in component form and unit vector form*** ***and vice versa and give them enough time to try to think and solve***  ***Example(1) : Find the length and Write the vectors in unit vector form , ,***  *Step (5):Example (2) discuss with Ss to write the opposite operation*  *to convert to component form for the vectors 3i +5j , -2j +4j -7k , i- 5k*  Step (6): (position vectors) Vectors between two points  *Tt Explain and discuss how can write a vector by two points such as*    Step (7): *give Ss Example(1) to write vector by using two points*  *Find AB given :*  *a) A (2,3) and B(4,7) b) A (3,-1) , B( 1,4)*  *Step(8) : Negative vector and zero vector*  *Discuss the meaning of a , - a & AB , BA : a ≠ -a , a+-a= 0*  *a -a B B AB = -BA*  *A A*  Step(9) **Ask Ss to solve another practice NO( 2) p(492) ( a,b,f ) solve it in their books**  Step(10) **Ask Ss tofind distance vector b from a**  Step(11) *Give Ss more practice to test their knowledge to be sure that Ss know the meaning of All ideas in the work sheet* | | | | | | | | | | | | | | Step (1)*Ss try to answer the questions from* [*http://www.physicsclassroom.com/class/1dkin/u1l1b.cfm*](http://www.physicsclassroom.com/class/1dkin/u1l1b.cfm)  **STUDENT’S ROLE:-**  *on line*  *Step (2) students write the vectors and length of OB and OC by different ways on board*  *Step (3)* *Ss Listen the explanation and write this table in their notebook*    Step (4) *Ss try to solve example 1 then complete the following the vector in ………. form*  *5i +7j-4k in………. form*  *The magnitude of the vector 3i+4j ==*    Step (5) Ss solve example 2 with Tt then convert , to unit vector form and show their answers on the board  Step(6) Ss listen to explaining and write the rule in notebook (**pair activity**)  Step (7) Ss try to solve example 1 with explaining and find AB page (491) No2(a, ,) N03 **(asgroups)**    Step(8) Ss listen to the explaining and write the rule in notebook and write relation between a , -a  (as individual )  Step(9) Ss solve exercise page401 – No-1}, No2  n  Step(10) ss solve ex page 391 N4 –N5  Step(11) *Tt explain and help Ss for weak points they needed* | | | | | | | | | | | | **TIME:**  (10min)  (15min  (10min)  (20min)  10min  (10min |
| ***DIFFERENTIATION / ACCOMODATIONS :*** for low level of student: give them Exercise NO( 1-2) P(383)  :for high level of student:give them all exercise | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **CLOSURE:**  7 minutes | | | | | *Give Ss Extra work in worksheet to solve it to get more skill get more skill* | | | | | | | | | | | | | more skill | | | | | | | | |
| ***ASSESSMENT STRATEGIES:***   |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | | **✓****Teacher observation** | **❒ Criteria based assessment** | | **❒ Quiz** | | **✓** **Work from textbook/booklet** | **❒ Project** | | *❒*  **Peer assessment** | **❒ Self assessment** | | **❒ Pre/post test** | | **❒ Investigation** |  | | **✓ other…………………………………………………** | |  | |  | | | | | | | | | | | | | | | | | | | | | | | | | **HOMEWORK:**  **DUE DATE:**  No 2 ,3 p ( 401) | | | | |
| ***METHODOLOGY (TEACHING STRATEGIES)***   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **✓** *Brainstorm / Mind map* | *❒ Student writing* | *❒***✓** *Think-pair-share* | *❒ Problem Solving* | *❒ Venn diagram* | | *❒ Shared writing* | *❒ KWL chart* | **✓** *Graphic organizer* | **✓** *Cooperative group activity* | *❒ Learning stations* | | | *❒ Shared reading* | *❒ Group debate or discussion* | *❒ Projects* | *❒ Modeling* | *❒ Student reading* | | *❒ Jigsaw* | *❒ Other…………………* | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **TEACHER REFLECTION:** | | | | | |  | | | | | | | | | | | | | | | | | | | | |