**WHS AP Calculus AB**

**Unit 2: Differentiation**

**Weeks 5 - 6**

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| **Date** | **Section** | **Lesson Objectives/The student will:**  **Instructional Strategies/The teacher will:** | **Assignments** | **Planned Assessments** |
| 9/24 | 2.1 | Find the slope of a function at a point or find the derivative using the limit process  Direct instruction: Present notes, work out examples | **Class:**  Watch 2.1 Video 1 **p. 103:** #2 - 4 all  **Home: p. 104** #8, 12, 16 |  |
| 9/25 | 2.1 | Complete classwork with partners: Find the derivative using the limit process  Review homework  Monitor and guide practice as needed | **Class: p. 104** #18 – 24 evens  **Home:**  Watch 2.1 Video 2  **p. 104** #26, 34 |  |
| 9/28 | 2.1 | Find the equation of a line tangent to a function or parallel to a tangent line at a given point; Complete classwork assignment  Review homework  Monitor and guide practice as needed | **Class: p. 104** #28, 32, 36, 38, 44  **Home:**  Watch 2.1 Video 3 |  |
| 9/29 | 2.1 | Relate the graph of a function and the graph of its derivative  Answer student questions re: video  Monitor independent practice | **pp. 104-5** #39-42 all, 45-48 all |  |
| 9/30 | 2.1 | Use the average rate of change to find a tangent line  Relate differentiability and continuity  Identify where a derivative function is discontinuous  Direct instruction: Present notes, work out examples | **pp. 105-6**  #54, 58, 62, 74, 76, 80, 84 – 94 evens |  |
| 10/1 | 2.2 | Use basic differentiation rules to find derivatives:   1. Constant rule 2. Power rule 3. Constant multiple rule   Direct instruction: Present notes, work out examples | **Class: p. 115:**  #1 – 10 all,#25 – 30 all |  |
| 10/2 | 2.2 | Use sum & difference rules to find derivatives  Find derivatives of sine and cosine functions  Answer student questions re: video  Monitor independent practice | **Class: p. 115:** #12 – 24 & 32 – 38 evens, 42 – 54 every other even |  |

**WHS AP Calculus AB**

**Unit 2: Differentiation**

**Weeks 7 - 8**

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| **Date** | **Section** | **Lesson Objectives/The student will:**  **Instructional Strategies/The teacher will:** | **Assignments** | **Planned Assessments** |
| 10/5- 10/12 |  | NO SCHOOL: Inclement Weather | **p. 128** #94, 96, 102, 104 |  |
| 10/13 | 2.2 | Find an equation of a tangent at a point  Identify points with horizontal tangent lines  Identify functions with given derivatives  Direct instruction: Present notes, work out examples | **pp. 115-6:** #56, 58, 60, 64, 66, 68 |  |
| 10/14 | Review | Review for quiz  Monitor and guide practice as needed | **Study for Quiz**  **Suggested Review Problems:**  **p. 158** #1, 9, 11, 15-31 odds |  |
| 10/15 | Assess | Take quiz  Monitor assessment | **Class: p. 104** #28, 32, 36, 38, 44  **Home:**  Watch 2.3 Video 1  **p. 126** #2 – 12 evens | **Quiz:**  **Sect. 2.1 & 2.2** |
| 10/16 | 2.3 | Rewrite functions to simplify differentiation  Use the product & quotient rules to find derivatives  Direct instruction: Present notes, work out examples | **p. 126**  #14 – 22 evens, 26, 30, 34 |  |
| 10/19 | 2.3 | Use the derivative to find the instantaneous rate of change and the equation of the tangent line at a point  Monitor and guide practice | **pp. 126-7** #42, 46, 50, 54, 62, 64, 68 |  |
| 10/20 | 2.3 | Find the instantaneous rate of change and the equation of the tangent line at a point  Find horizontal tangents and higher order derivatives  Direct instruction, Guide practice | **Class: pp. 127-8**  #72, 74, 94, 96, 102, 104, 108  **Home:** Watch 2.4 Video 1  **p. 137** #1 – 6 all |  |
| 10/21 | 2.4 | Use the chain rule and the General Power Rule to differentiate functions  Direct instruction, Guide practice | **p. 137**  **Class:** #8 – 14 evens  **Home:** #18 – 34 every other even |  |
| 10/22 | 2.4 | Use the chain rule and the General Power Rule to differentiate trig functions  Direct instruction, Guide practice | **p. 137** #44 – 64 every other even |  |
| 10/23 | 2.4 | Find the equation of the tangent line at a point  Guide practice | **Complete and review 10/22 assignment** |  |

**WHS AP Calculus AB**

**Unit 2: Differentiation**

**Weeks 9 - 10**

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| **Date** | **Section** | **Lesson Objectives/The student will:**  **Instructional Strategies/The teacher will:** | **Assignments** | **Planned Assessments** |
| 10/26 | 2.4 | Find the equation of the tangent line at a point  Direct instruction: Work out examples  Guide practice | **pp. 137-8** #70 – 82 every other even, 92, 100 |  |
| 10/27 | 2.3-2.4 | Review for quiz  Guide independent practice | **Study for Quiz**  **Suggested Review Problems:**  **pp. 126-9:** #1, 9, 41, 63, 117  **pp. 137-8:** #7, 29, 61, 69, 91 |  |
| 10/28 | Assess | Take quiz  Monitor assessment |  | **Quiz:**  **Sect. 2.3 & 2.4** |
| 10/29 | 2.5 | Rewrite equations in explicit form  Use implicit differentiation to find derivatives and the slope of a graph or equation of a tangent line at a point  Direct instruction: Present notes, work out examples | **p. 146**  #2 – 12 evens, 22, 24, 28, |  |
| 10/30 | 2.5 | Use implicit differentiation to find the equation of a tangent or normal line to a point or to find points where a graph had vertical or horizontal tangents  Direct instruction: Present notes, work out examples  Monitor and guide practice | **p. 147**  #52, 54, 58 |  |
| 11/2 | 2.5 | Use implicit differentiation to find the slope of a tangent at a point or to find a 2nd derivative  Review homework and present examples for finding 2nd derivatives | **pp. 146-7**  #30, 32, 34, 38, 46, 48, 50 |  |
| 11/3 | Review | Review for quiz  Guide independent practice | **Suggested Review Problems:**  **p. 146:** #9, 11, 35, 37  **p. 160:** #107 |  |
| 11/4 | Assess | Take quiz  Monitor assessment |  | **Quiz:**  **Section 2.5** |
| 11/5 | Review | Review for unit test  Monitor and guide independent practice | **Suggested Review Problems** |  |
| 11/6  11/9 | Assess | Take unit test  Monitor assessment |  | **Unit 2 Test:**  **Differentiation** |