**Edwards & Lang Syllabus ☺ 2017-2018 ☺ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ ☺Block\_\_\_\_\_\_\_**

**IBMYP A2T Unit 6– Exponential & Logarithmic Functions & Relations**

**HOMEWORK WORKSHEET POLICY:** *In order to receive a 3, you must attempt each problem & FULLY correct in a RED pen.*

**IXL QUIZ POLICY:** *If you choose to do an IXL as a quiz grade, you must write the IXL number & final score with detailed work for at least 10 problems in order for the quiz grade to count! You have until the end of the unit to turn these in for a grade.*

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| **DATE** | **DAILY LEARNING TARGETS & OBJECTIVES** | **INDEPENDENT PRACTICE (HOMEWORK)** | **GRADE** |
| Tue/Wed,Feb. 20/21***Day 00*** | **Test on Unit 5**Speed Dating/Introduction to Unit 7 (Mitosis) | Day 00 Solving Exponential Equations WSFinish the Mitosis Problem |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Thu/Fri,Feb. 22/23***Day 01*** | Graphing Exponential FunctionsIntroduce Exponential Growth & Decay | Day 01 Graphing Exponential Functions IXL S.3 (Part of your Homework (at least an 80%)**MDJ #1 to be assigned and completed on GC** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Mon/Tue,Feb. 26/27***Day 02*** | Penny Lab (IXL S.11)Modeling Exponential Growth & Decay  | Day 02 Applications Practice with Models (on GC)**MDJ #2 to be assigned and completed on GC****IXL S.12, S.13, & S.14** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Wed/Thu,Feb. 28/Mar. 1***Day 03*** | Logarithms and Graphing Logarithmic FunctionsCommon and Natural Logarithms | Day 03 Logarithm Skills PracticeIXL S.1 (Part of your homework (at least an 80%)**IXL R.1, R.2, R.3, & R.4** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Fri/Mon,Mar. 2/5***Day 04*** | Properties of Logarithms***Progress Reports Issued March 2*** | Day 04 Properties of Logarithms Worksheet**IXL R.8, R.9, R.10, R.11, & R.12** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Tue/Wed,Mar. 6/7***Day 05*** | Solving Logarithmic Equations with like bases | Day 05 Solving Logarithmic Equations Practice**IXL S.7. S.8** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Thu/Fri,Mar. 8/9***Day 06*** | Solving Logarithmic Equations with unlike basesChange of Base Formula | Day 06 Solving Mixed Equations Worksheet**MDJ #3 to be assigned and completed on GC****IXL R.6, S.5, S.6** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Mon/Tue,Mar. 12/13***Day 07*** | Applications of Exponential & Logarithmic Functions | Day 07 Applications of Exponential and Logarithmic Functions Worksheet |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Wed/Thu,Mar. 14/15***Day 08*** | Unit 6 Review***March 14 is π Day!*** | Unit 6 Test Review WorksheetFinish any IXLs you want to be graded! |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |
| Fri/Mon,Mar. 16/17***Day 09*** | **Test on Unit 6****March 17: HAPPY ST. PATRICKS DAY!** *Wear Green!* | **TOTAL POINTS** |  |
| L. Target? | Emoji  | What Questions do you still have?  | What were your AHA Moments? |

**Guiding Question: Does every yin have a yang?    Global Context:  Science & Technology**

**How can doctors predict our adult height at the age of two?**

 **What is more acidic, an orange or milk?   How does the Richter scale work?**



**UNIT 6 EXPONENTIAL & LOGARITHMIC FUNCTIONS LEARNING TARGETS:**

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| **Target 1** | I can graph exponential and logarithmic functions, and I can identify the type of function and the transformation and components of its graph. |
| **Target 2** | I can convert equations from exponential to logarithmic form and vice-versa, evaluate logarithmic expressions, use the properties of logarithms to expand and condense logarithmic expressions, and explain the restrictions on the base of an exponential or logarithmic function. |
| **Target 3** | I can identify the inverse relationship between exponential and logarithmic functions, and find the inverse of exponential and logarithmic functions. |
| **Target 4** | I can solve exponential and logarithmic equations with and without a calculator, as appropriate, and I can identify extraneous solutions and the reason(s) they occur. |
| **Target 5** | I can solve real-life problems that require the use of exponential and logarithmic models. |

**UNIT 6 ENDURING UNDERSTANDINGS:**

1. Exponential functions are used to model rapid growth or decay.
2. Logarithmic function is the inverse of exponential function.
3. The changes in the parameters of the exponential and logarithmic functions affect the transformation of its graph.
4. The properties of logarithms are related to the laws of exponents.
5. The rate of continuous growth or decay can be determined using logarithms.
6. Logarithms **ARE** Exponents!

**UNIT 6 ESSENTIAL QUESTIONS:**

1. What are the unique limitations of exponential and logarithmic functions?  Why do they occur?
2. How are exponential and logarithmic functions related?  Be sure to include EVIDENCE.
3. How are the properties of exponents used in simplifying expressions and solving logarithmic equations?

**SOL Objectives (2009):**

AII/T.6 The student will recognize the general shape of exponential and logarithmic functions and will convert between graphic and symbolic forms of functions. A transformational approach to graphing will be employed. Graphing calculators will be used as a tool to investigate the shapes and behaviors of these functions.

AII/T.7 The student will investigate and analyze functions algebraically and graphically. Key concepts include:

1. domain and range, including limited domains and ranges;
2. zeros;
3. x and y intercepts;
4. intervals in which a function is increasing or decreasing;
5. asymptotes,
6. end behavior;
7. inverse of a function.

AII/T.9 The student will collect and analyze data, determine the equation of the curves of best fit, make predictions and solve real world problems using mathematical models. Mathematical models will include polynomial, exponential and logarithmic functions.