**11.1 IB Math SL**

**Unit 2:** Polynomial and rational functions

Mark a unit circle with the standard angles in degrees & radians (30, 45, 60, & 90 degrees, etc.)

**Guiding question:** How do you graph the function N(x)/D(x)?

**CCLS:** HSF.LE.B.5 Interpret functions in terms of the situation they model

**Do Now:** Larson p 190 #10, 12, 14

**Lesson:** Graphing rational functions using asymptotes and key points

**Task:** Textbook (homework) problems

**Assessment:** Test corrections due

**Homework:** Larson p190 #4, 57-61 odd, 67, 73, 75, 79, 81, 85-87, 90

**Open questioning**: What characteristics of a rational function are determined by its denominator? What characteristics are determined by the relationship of the numerator and denominator’s degrees?

**Build on prior learning:** Linear equations, functions, plotting data, the coordinate plane

**Mathematical literacy/ vocabulary:** Linear regression, least squares fit, correlation coefficient; direct/inverse/joint variation, one-to-one function, inverse function, vertical and horizontal line tests

**Tools & technology:** Calculator stat functions, linear regressions & correlation setting; Desmos

**Keys:** Precision in graphing, determining the equation of a line in a situation

**Student engagement / differentiation:** *exceeding standards* – explain work on board,   
*meeting standards* – class contributions, *below standards* – teacher call on

**Affinity grouping (2-3 students):**

Diana, Kyara Melissa, Leslie, Ruth

Komalpreet, Obdulio Jamilee, Chelsea, Eileen

\*IEP, \*\*ELL

**12.1 IB Math Studies**

**Unit 5:** Applied Statistics

Mark a unit circle with the standard angles in degrees & radians (30, 45, 60, & 90 degrees, etc.)

**Guiding question:** How do we analyze data statistically?

**CCLS:** HSS.ID.A.3 Interpret the shape of distributions

**Do Now:** Given the distribution of exam scores, what questions might we ask?

**Lesson:** Learn to use Google surveys for online data collection

**Task:** IB project paper (you should be performing data collection by now)

**Assessment:** Submit current status of paper online in shared folder

**Homework:** Linear regression exam practice problems

**Writing to learn**: Given the distribution of exam scores, discuss the kinds of questions we might ask and the calculations used to answer them. (paragraph length)

**Open questioning**: Why do we summarize situations in quantitative terms? Compare and contrast box plots with cumulative distribution graphs.

**Build on prior learning:** Histograms, graphing on the coordinate plane

**Mathematical literacy/ vocabulary:** Central tendency, mean, median, mode, spread, range, IQR, standard deviation, quartile, percentile, quintile, frequency; correlation vs causation

**Tools & technology:** Calculator stat functions; Geogebra, Word, Google forms

**Keys:** Interpretation of distribution statistics in situation context

**Student engagement / differentiation:** *exceeding standards* – explain work on board,

*meeting standards* – work independently, *below standards* – work in pairs

**Heterogeneous grouping (4 students), exceeding/below standards:**

Juan, Sulenny, Joseph, Skye Tiara, Kevin, Dion, Reynaldo

Destiny, Keyaira, Yanelka\*\*, Tomas Daniela, John, Mikiany\*\*, Zakai

Ana, Hugo, Pancy, Eribel Malachi, Kendall, Junior, Jeralyn

\*IEP, \*\*ELL

**11.2 Geometry**

**Unit 4:** Similarity

Mark a unit circle with the standard angles in degrees & radians (30, 45, 60, & 90 degrees, etc.)

**Guiding question:** How do we compare similar polygons?

**CCLS:** G-SRT.B.5 Use similarity criteria for triangles to solve problems

**Do Now:** Login to DeltaMath

**Lesson:** Area relationship of similar triangles

**Task:** Practice exercises for dilation, ratios, translations

**Assessment:** Deltamath proficiency and completion scores

**Homework:** Workbook p. 187 Similar polygons exercises

**Open questioning**: How are the different methods of calculating similarity ratios the same? How are they different? How are the ratios related to dilation?

**Build on prior learning:** Fractions, proportions, operations with ratios, simplifying fractions, dilation transformations, geometric notation & terminology

**Mathematical literacy/ vocabulary:** Auxiliary line, radical, average, mean, sum of squares

**Tools & technology:** Smartboard geometry tools, Deltamath accounts, laptop practices

**Keys:** Mathematical arguments as a sequence of logical statements

**Student engagement / differentiation:** *exceeding standards* – prove assertion to class, *meeting standards* – contribute within a group, *below standards* – one-on-one w teacher

**Heterogeneous grouping (4(3) students), exceeding/below standards:**

Nyasia, Sugeidy, Erika Arenazia, Yuleydi, Jerry, Tysean

Raul, Djeneba, Briana, Armando Eduardo, Miguel, Soleinys, Deanne

Joshua, Jackie, Yissel, Kyenne

\*IEP, \*\*ELL

**Engineering Applications**

**Unit 4:** Bridge design - Statics

Mark a unit circle with the standard angles in degrees & radians (30, 45, 60, & 90 degrees, etc.)

**Guiding question:** How do we design for maximum strength to weight?

**CCLS:** F.TF.5 Use design functions to model static phenomena

**Do Now:** Review design versus status of construction

**Lesson:** Joint failure experience

**Task:** Bridge construction – should be half complete, check alignment with plans

**Assessment:** Group work interaction

**Homework:** Truss design alternatives (math.huson.com)

**Open questioning**: What are some of the problems encountered building the experimental apparatus? How reliable or accurate are your measurements? How did your hypothesis guide the experimental design?

**Build on prior learning:** Data collection, graphical plotting, line of best fit, linear equations

**Mathematical literacy/ vocabulary:** Circular arc, period, pendulum, hypothesis, procedure, findings, line of best fit, independent and dependent variable, prototype

**Tools & technology:** Excel & Word integration, clock timer, practical construction materials

**Keys:** practical considerations of implementation, repeatability, prototyping and testing

**Student engagement / differentiation:** *exceeding standards* – explain work to class, *meeting standards* – contribute to group, *below standards* – one-on-one w teacher

**Heterogeneous grouping (3 pairs), exceeding/below standards:**

Jerry, Miguel

Raul, Erika

Joshua, Eduardo

\*IEP, \*\*ELL