**PACING GUIDE**

**COURSE:** Honors Calculus **GRADE(S): 12**

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| **MONTH** | **UNIT** | **STANDARDS/SKILLS** | **ASSESSMENTS**What evidence (formative/summative) is utilized to establish that the content, standards, & skills have been mastered? | **CONTENT**Topics being covered? What do students need to know? (*nouns*) | **ACTIVITIES**w/Integration of Technology & Career Ready Practices |
| September(1 week) | Pre-Calculus Review | MA.9-12.F-TF.AMA.9-12.F-TF.BMA.9-12.F-TF.CMA.K-12.2MA.K-12.4MA.K-12.5MA.K-12.6MA.K-12.7MA.K-12.8 | Assessment on Pre-Calculus Review | Advanced Algebra SkillsUnit CircleRadiansTrig IdentitiesGraph Transformations | Parent Graph ActivityTI-84 ActivityUnit graph Activity |
| September(2 weeks) | Prerequisites for Calculus | MA.9-12.F-TF.AMA.9-12.F-TF.BMA.9-12.F-TF.CMA.K-12.2MA.K-12.4MA.K-12.5MA.K-12.6MA.K-12.7MA.K-12.8 | Assessment on functions and their graphsAssessment on Logarithms and Trigonometric Functions | LinesFunctions and graphsExponential functionsParametric equationsFunctions and logarithmsTrigonometric functions | Graphing activity for logarithms and exponential functions |
| September/October(5 weeks) | Functions, Limits, and Continuity | MA.9-12.A-SSE.AMA.9-12.F-IF.C

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| MA.9-12.N-Q |

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| MA.K-12.1 |
| MA.K-12.3 |
| MA.K-12.5 |
| MA.K-12.6 |
| MA.K-12.7 |

 | Assessment on Rates of change and limitsAssessment on LimitsAssessment on continuityAssessement on rates of change and tangent lines | Rates of changes LimitsLimits and infinityOne sided limitsTwo sided limitsFinding limitsRates of change and tangent linesNormal lines | Partner activity for finding limitsMatching activity for one and two side limits |
| November/December(8 weeks) | Derivatives | MA.9-12.A-SSE.BMA.9-12.F-BF.BMA.9-12.F-IF.BMA.9-12.F-TF.AMA.9-12.G-GMD.AMA.9-12.N-RNMA.K-12.2MA.K-12.4MA.K-12.6MA.K-12.7MA.K-12.8 | Assessment on DifferentiationAssessment on Velocity and other rates of changeAssessment on chain rule and implicit differentiationAssessment on Derivatives of exponential and Logarithmic functionsMPA | Derivative of a functionPower ruleDifferentiabilityRules for differentiationQuotient ruleProduct ruleChain ruleVelocity and other rates of changeDerivative of trig functionsImplicit differentiationDerivatives of inverse trig functionsDerivatives of exponential and logarithmic functions | Matching activityInv trig and trig activityImplicit Differentiation activity |
| December/January(6 weeks) | Applications of Derivatives | MA.9-12.A-SSE.BMA.9-12.F-BF.BMA.9-12.F-IF.BMA.9-12.F-TF.AMA.9-12.G-GMD.AMA.9-12.N-RNMA.K-12.2MA.K-12.4MA.K-12.6MA.K-12.7MA.K-12.8 | Assessment on first and second derivative testsAssessment on modeling and optimizationAssessment on related ratesMPA | Extreme valuesMean value theoremConnecting the graphs of the function and the first and second derivativesModeling and optimizationLinearization and Newton’s methodRelated Rates | Extreme values and concavity graphing activityOptimization projectRelated rates activity |
| February(4 weeks) | Integrals | MA.K-12.2MA.K-12.3MA.K-12.4MA.K-12.5MA.K-12.7MA.9-12.A-SSE.BMA.9-12.F-BF.BMA.9-12.F-IF.CMA.9-12.F-TF.AMA.9-12.G-GMD.AMA.9-12.G-GMD.BMA.9-12.N-RN.A | Assessment on RAM approximation methodsAssessment on the definite integralAssessment on the fundamental theorem of calculusAssessment on the trapezoidal rule | RAM approx.. methodsDefinite integralsDefinite integrals and antiderivativesPower ruleFundamental theorem of calculustrapezoidal rule | RAM activityPower Rule discovery activity |
| March(3 weeks) | Integrals Continued: Differential equation and mathematical Modeling | MA.K-12.2MA.K-12.3MA.K-12.4MA.K-12.5MA.K-12.7MA.9-12.A-SSE.BMA.9-12.F-BF.BMA.9-12.F-IF.CMA.9-12.F-TF.AMA.9-12.G-GMD.AMA.9-12.G-GMD.BMA.9-12.N-RN.A | Assessment on slope fieldsAssessment on integration by substitutionAssessment on integration by partsAssessment on exponential growth and decayMPA | Antiderivatives and slope fields.Integration by substationIntegration by partsExponential growth and decayPopulation growthNumerical methods | Exponential growth and decay activityU-substitution activitySlope field and functions matching activity |
| April/May(4 weeks) | Applications of Definite Integrals | MA.K-12.2MA.K-12.3MA.K-12.4MA.K-12.5MA.K-12.7MA.9-12.A-SSE.BMA.9-12.F-BF.BMA.9-12.F-IF.CMA.9-12.F-TF.AMA.9-12.G-GMD.AMA.9-12.G-GMD.BMA.9-12.N-RN.A | Assessment on Areas in the planeAssessment on Volumes | Integral as a net changeAreas in the planeVolumes and shellsLengths of Curves | Lantern Project |
| May/June(4 weeks) | L’hopital’s rule, improper integrals, and partial fractions | MA.K-12.2MA.K-12.3MA.K-12.4MA.K-12.5MA.K-12.7MA.9-12.A-SSE.BMA.9-12.F-BF.BMA.9-12.F-IF.CMA.9-12.F-TF.AMA.9-12.G-GMD.AMA.9-12.G-GMD.BMA.9-12.N-RN.A | Assessment on Rates of GrowthAssessment on improper integralsMPA | L’Hopitals ruleRelative rates of growthImproper integralsPartial Fractions and integral Tables | Integral Tables activity |
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