CASE

Principles of Agricultural Science – Animal
Common Core State Standards for High School Mathematics Alignment

Key: o = Denotes a correlation in ideas and concepts in both standard and lessons but validation is required to infer direct instruction of standard. Modeling standards are indicated by the star symbol (*) throughout other conceptual categories.		Unit 1: Worlds of Opportunity	Unit 2: History and Use of Animals	Unit 3: Animal Handling and Safety	Unit 4: Cells and Tissue	Unit 5: Animal Nutrition	Unit 6: Animal Reproduction	Unit 7: Genetics	Unit 8: Animal Health	Unit 9: Animal Products, Marketing, and Selection
CCSS: Conceptual Category – Number and Quantity										
The Real Number System	• Extend the properties of exponents to rational exponents.									
	• Use properties of rational and irrational numbers.				X	X	X	X	X	X
Quantities	• *Reason quantitatively and use units to solve problems.			X	X	X	X	X	X	X
The Complex Number System	• Perform arithmetic operations with complex numbers.									
	• Represent complex numbers and their operations on the complex plane.				X					X
	• Use complex numbers in polynomial identities and equations.									
Vector and Matrix Quantities	• Represent and model with vector quantities.									
	• Perform operations on vectors.									
	• Perform operations on matrices and use matrices in applications.									
CCSS: Conceptual Category – Algebra										
Seeing Structure in Expressions	• *Interpret the structure of expressions.									
	• *Write expressions in equivalent forms to solve problems.			X	X					
Arithmetic with Polynomials and Rational Expressions	• Perform arithmetic operations on polynomials.									
	• Understand the relationship between zeros and factors of polynomials.									
	• Use polynomial identities to solve problems.									
	• Rewrite rational expressions.									
Creating Equations	• *Create equations that describe numbers or relationships.									
Reasoning with Equations and Inequalities	• Understand solving equations as a process of reasoning & explain the reasoning.			X					X	
	• Solve equations and inequalities in one variable.			X						
	• Solve systems of equations.									

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	• *Represent and solve equations and inequalities graphically.			X	X					
CCSS: Conceptual Category – Functions										
Interpreting Functions	• Understand the concept of a function and use function notation.									
	• *Interpret functions that arise in applications in terms of the context.									
	• *Analyze functions using different representations.									
Building Functions	• *Build a function that models a relationship between two quantities.									
	• Build new functions from existing functions.									
Linear, Quadratic, and Exponential Models	• *Construct and compare linear, quadratic, and exponential models and solve problems.		X		X					
	• *Interpret expressions for functions in terms of the situation they model.		X		X					
Trigonometric Functions	• Extend the domain of trigonometric functions using the unit circle.									
	• *Model periodic phenomena with trigonometric functions.									
	• Prove and apply trigonometric identities.									
CCSS: Conceptual Category – Geometry										
Congruence	• Experiment with transformations in the plane.									
	• Understand congruence in terms of rigid motions.									
	• Prove geometric theorems.									
	• Make geometric constructions.									
Similarity, Right Triangles, and Trigonometry	• Understand similarity in terms of similarity transformations.									
	• Prove theorems involving similarity.									
	• *Define trigonometric ratios and solve problems involving right triangles.									
	• Apply trigonometry to general triangles.									
Circles	• Understand and apply theorems about circles.									
	• Find arc lengths and areas of sectors of circles.									
Expressing Geometric Properties with Equations	• Translate between the geometric description and the equation for a conic section.									
	• *Use coordinates to prove simple geometric theorems algebraically.									

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Geometric Measurement and Dimension	• *Explain volume formulas and use them to solve problems.									
	• Visualize relationships between two-dimensional and three-dimensional objects.			X						
Modeling with Geometry	• *Apply geometric concepts in modeling situations.			X	X					
CCSS: Conceptual Category – Statistics and Probability										
Interpreting Categorical and Quantitative Data	• *Summarize, represent, and interpret data on a single count or measurement variable.			X	X	X	X	X		X
	• *Summarize, represent, and interpret data on two categorical and quantitative variables.									
	• *Interpret linear models.						X			
Making Inferences and Justifying Conclusions	• *Understand and evaluate random processes underlying statistical experiments.							X	X	
	• *Make inferences and justify conclusions from sample surveys, experiments, and observational studies.			X	X					
Conditional Probability and the Rules of Probability	• *Understand independence and conditional probability and use them to interpret data.			X	X		X	X		X
	• *Use the rules of probability to compute probabilities of compound events in a uniform probability model.				X			X		
Using Probability to Make Decisions	• *Calculate expected values and use them to solve problems.				X	X		X		X
	• *Use probability to evaluate outcomes of decisions.						X			X

Table 1. Comparison of *Common Core State Standards for High School Mathematics (CCSSHSM)* and Principles of Agricultural Science - Animal™.

Source: Common Core State Standards Initiative