Honey, I'm Hungry

"If the bees disappeared off the surface of the globe then man would only have four years of life left." -Albert Einstein

It's easy to take the overwhelming abundance of food we have for granted. How many times have you had a "supersized" meal? Or had dinner at a restaurant and taken home the leftovers? Food is everywhere.

Have you ever stopped to think about where the ingredients of your favorite ice cream, breakfast cereal or dinner originates? Many of the foods we eat come from plants that have been cross pollinated by bees. Unfortunately, over the last three years more than 1 in 3 honey bee colonies in the U.S. have died!



If the bee population were to disappear, not only would the cost of food rise, but its nutritious value would decline. What do you think life would be like if we couldn't have access to

blueberries, yogurt, ice cream, apples and more? It may be hard to believe, but an insect as small as the bee could impact the future of our food supply, economics and human sustainability.

Colony Collapse Disorder, as the decline in bee population has been called, is not only a U.S. problem, but also a global issue. Researchers are not exactly sure what causes CCD, but they believe there may be several factors contributing to the problem, including viruses, mites, chemical exposure and poor nutrition. Not only is the decrease in bee population affecting the United States, but also Europe, South America, India, and China. Close to one third of the food that we consume comes from animals that eat plants which are pollinated by bees. Our food supply is under threat! How can we save the bees?

Developing a proposal that will urge local farms and related businesses to support the local beekeeping business is an important first step to save them. Evidence based upon mathematical support that will identify the relationships that exist between the honeybee and our food supply both algebraically and graphically would be vital. Using collected data to further provide two predictions about the future of our agriculture would be needed to support any suggestions that might be made in interest of the bees and people. The proposal's predictions will be based on your findings and will include all of your mathematical representations in a professional layout of your choice.



Honey, I'm Hungry Rubric

	Novice	Apprentice	Practitioner	Expert
Introduction to Data Collection	2-3 paragraphs including less than 5 statistics associated with the decline	 2-3 paragraphs including: 5-8 statistics associated with the decline the variables specific to the study 	 2-3 paragraphs including: background of bee decline 5 - 8 statistics associated with the decline the variables specific to the study 	all of <i>Practitioner</i> plus statistical analysis of which factor contributes most strongly to the CCD
Data Analysis	 recognizes correlation within the data by identifying the line of best fit and associated linear equation contains 2-3 appropriate graphs/charts to visually depict data 	 recognizes correlation within the data by identifying the line of best fit and associated linear equation includes explanation, calculation and application of line of best fit contains 2-3 appropriate graphs/charts to visually depict data 	 recognizes correlation within the data by identifying the line of best fit and associated linear equation includes an explanation, calculation and application of line of best fit describes trend(s) within the data contains 2-3 appropriate graphs/charts to visually depict data 	all of <i>Practitioner</i> plus critical analysis of a source contrary to the position of honeybee decline
Proposal	 3-5 paragraphs including: analysis of mathematical representation statement of 1 prediction with supporting data drawn from graphs and functions (algebraically and graphically) 	 3-5 paragraphs including: analysis of mathematical representations statement of 1 prediction with supporting data drawn from graphs and functions (algebraically and graphically) plan for incentive program to persuade people to take action 	 3-5 paragraphs including: analysis of mathematical representations statement of 2 predictions with supporting data drawn from graphs and functions (algebraically and graphically) detailed plan for incentive program to persuade people to take action 	all of <i>Practitioner</i> plus additional information from an interview with a local expert on the honeybee population
Mechanical Criteria/ Calculations	 uses formulas uses equations to represent data some calculations are included includes both the data analysis and proposal in final presentation contains more than 5 spelling and/or grammatical errors 	 uses accurate mathematical formulas correct use of equations to represent data all calculations are included includes both the data analysis and proposal in final presentation professional layout contains 3-5 spelling and/or grammatical errors 	 uses accurate mathematical formulas correct use of equations to represent data all calculations are included and correct includes both the data analysis and proposal in final presentation includes a professional layout contains no more than 1-2 spelling and/or grammatical errors 	all of <i>Practitioner</i> plus layout enhances key data graphics and explanations







Honey, I'm Hungry Content Facilitation Grid

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Student	Interprets graphs	Creates graphs in Excel	Creates functions from graphical relationships	Makes predictions	Interprets data	Computes (using technology) and interpret the correlation coefficient of a linear fit.	Develops two predictions for proposal	Supports predictions with data	Interprets data in written proposal	Produces clear and coherent persuasive writing within the proposal	Uses functions to describe overall trends in proposal	Develops and strengthens writing as needed by planning, revising, editing, rewriting	Gathers relevant information from multiple authoritative print and digital sources	Creates equations that describe numbers or relationships	Understands the concept of a function and use function notation	Evaluates random processes underlying statistical experiments	Explains each step in solving a simple equation



Comprehension	 What is a function? What is a set of data? What is a correlation? What is the difference between a squared and cubic function? What are independent and dependent variables?
Application	 How can data be represented algebraically and graphically? How does statistics support predictions that we make? What are some modern day concerns that we use formulas and statistical data to solve? How will you organize your proposal to include mathematical support and facts to back the suggested outcomes?
Connection	 How would the data you have selected predict the future of the food industry? How might this impact your own food choices? What are two additional relationships that you see in the world around you that could be represented both graphically and algebraically? How does data analysis help you make predictions? (Can we use data to determine grades, athletic ability and political success?)
Synthesis	 What would happen if the line of best fit was not accurate? How might the situation we have been given change? How does the data affect the decisions and preventative measures we take when it comes to our food choices? Analyze the mathematical support provided in relation to your proposal. Are there any elements that could be changed to make a more accurate prediction? Name additional pieces of data that you think is critical in formulating a prediction.
Metacognition	 How do you plan on bringing awareness about your prediction to the NJ Department of Agriculture? How could you have improved upon your proposal and presentation? What was the most challenging part of this task for you? What was difficult about analyzing the data? What new technology did you have the opportunity to explore while completing this task? What new skill or concept did you learn about statistics, data analysis, graphing and functions?

