Vision Statement for *Math* at NACA

Vision Statements articulate the long-term objectives of the content area, juxtapose that vision to the current state of teaching and learning at the school, and plan for a five years of action to meet the vision.

All “elements” should be in narrative form. The use of research statistics and graphics to support claims is encouraged.

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| Element 1 – A Vision for Science at NACA |
| Five years from now, what will a graduating senior look like as a result of her NACA math curriculum? What skills does she possess? What knowledge? What dispositions? What understandings guide her actions?  Five years from now a graduating NACA senior will demonstrate proficiency in all of the Common Core Mathematical Practices for Algebra:  1. Make sense of problems and persevere in solving them.  2. Reason abstractly and quantitatively.  3. Construct viable arguments and critique the reasoning of others.  4. Model with mathematics.  5. Use appropriate tools strategically.  6. Attend to precision.  7. Look for and make use of structure.  8. Look for and express regularity in repeated reasoning.  The specific content standards that the NACA graduating senior has mastered will depend on her own interests and career aspirations. NACA will offer her **choices** about pathway at the end of her sophomore year. Regardless of her pathway, she has the requisite skill and ability to use the math she has learned in whatever context she needs it in, and to reconstruct content she may have forgotten, because her foundation is strong, her confidence is high, and she is able to ask for and get help when she needs it. She understands where she can access resources and she can ask appropriate questions to fill in any gaps she may have. She exemplifies the NACA core values of perseverance and reflection, and is creative and articulate about her process. She has learned how to work constructively in a group and to appreciate her own and others’ perspectives. She understands that math is a language and is able to use it to communicate effectively when she needs to, and to critically evaluate what she hears and reads. She understands math as an integral part of life, and not a separate, disconnected field. She generalizes the mathematical practices to the rest of her life, using the structures and precision she has gained in math to make her life run more smoothly, and she is not afraid to do the math when she encounters it outside of class. For her, math is a useful tool that she is able to wield skilfully. If her career choice is in a STEM field, our NACA senior is poised to test into college-credit bearing classes with no remediation, and to succeed in those classes. If not, she is still confident about the mathematics she has learned and demonstrates logical reasoning and strategic problem-solving ability. She is able to handle the mathematics she will encounter both in college and in life. All NACA students can use mathematics to critically evaluate claims they encounter in their lives as consumers and participants in the political system. |
| What senior summative assessment will evaluate student ability, and therefore teacher and school ability, against the objectives of science? Describe the assessment here.  Again, within 5 years NACA will have a more individualized path to student success and future. The summative assessment will by necessity depend on the particular path being demonstrated by the student. In any case, it will involve a public demonstration that allows outside evaluators as well as the NACA team to make a decision about the progress and proficiency of the individual student. |
| Element 2 – The Current State of Science at NACA |
| What information/data do we currently possess about our current success and challenges in meeting the math vision?  Our data shows that NACA kids tend to like math more than some kids do. That’s a huge plus. Also, they are getting steadily better at the “using” part of the math, though they are still much better at the “doing” part, which is why we are focusing on strategies to help them be better thinkers and collaborators. |
| Element 3 – The Five-year Plan |
| With the goal of achieving the vision, what is possible next year? The year after? Complete the five-year plan, and please use measurable objectives.[[1]](#footnote-0)    Our first goal as a math team, for the 2015-16 school year, is to get better at teaching students to work effectively in groups. We believe that the ability to work cooperatively is an essential piece for student success. We will be looking for “group-worthy projects” to give to our students, and we will evaluate the results of those projects as part of our ongoing PD, working to revise whatever turns out to be counterproductive and to find ways to make our instruction and the work of our students more productive.  In the second year, 2016-2017, we want students to see that struggle/perseverance is an integral part of being a math student. The math team will learn techniques to facilitate struggle and move away from giving answers or strategies. We will use observations of each other and/or videotapes of our classes, and fearlessly and transparently analyze the changes we see or don’t see to help us get better at this.  In 2017-2018, our main focus will be helping students believe that they can learn and do mathematics, to help ensure that they are confident! The math team will work on giving the kinds of feedback that lead to enhanced student self esteem and productivity.  We will study specific texts and techniques of feedback, and again use analysis of videos and observations as well as looking at how we give written feedback, in order to improve our skills in this department.  In 2018-2019, we will make sure that our students can find and use appropriate strategies to solve complex (word) problems. Math team will work with outside sources and use resources such as Crossing the River With Dogs, Get It Together and quizzles to help students develop the necessary skills. (Of course, by then we may have developed or discovered other resources as well). By the end of this year, we hope to be able to throw complex and novel problems at our students and have them find viable strategies and solutions without much (if any) direction from their teachers.  And in 2019-perfect vision year we will see that our vision has paid off: Our goal in this year is that students test proficient on whatever outside evaluation the state has imposed that year.  Caveat: As we implement various parts of our 5 year plan, we may find it necessary to move in different directions, different paces, and/or different sequences from what we are envisioning today. Our team will commit to remaining flexible and reflective, and continually strive to do the best for our students at every step of the journey. |
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| What should your external professional development look like for the 2015-16 school year in order to help you move toward your vision?  Our hope is that we can find professionals who can help us get better at teaching students to work effectively in groups. We have identified a couple of teachers that we know here in Albuquerque that we think might be willing to work with us (Jana Rupp, Bosque School, Karla Gade, SVA) to get started. Probably our first step will be to read Designing Groupwork by Elizabeth Cohen (and Rachel Lotan), and talk about what particular steps we can take right away in common. We believe that if we are consistent across grade levels at how we approach group work, we will see results. |

1. <http://www.celt.iastate.edu/teaching-resources/effective-practice/revised-blooms-taxonomy/>

   <http://static.pdesas.org/content/documents/M1-Slide_19_DOK_Wheel_Slide.pdf> [↑](#footnote-ref-0)