New Tech Network

# SCHOOL SPOTLIGHT: NAPA JUNCTION ELEMENTARY SCHOOL

## About Napa Junction Magnet School

In its third year as a New Tech School, Napa Junction Magnet School (NJMS) has been committed to developing a community of learners through its STEM-based, Project-Based Learning (PBL) program. The mission of the school is "to foster social and emotional growth, 21st century skill development, and academic progress within a STEM-focused curriculum."

To this end, the school implements wall-to-wall PBL that is integrated across subject areas. While PBL can be limited to a separate block of time in some schools, NJMS began its PBL integration when it received a federal magnet grant in 2013, which sparked significant planning among the staff around how best to meaningfully engage students and prepare them for success in college and future careers.

Today, visitors to NJMS typically encounter students engaged in authentic and rigorous projects – from kindergarten students talking about perseverance and resourcefulness, 3rd graders using technology to conduct research and working in teams on a motion, force, and model project, or 5th grade English language learner students actively presenting their findings on endangered animals in an Ecosystems project.

Napa Junction Magnet
A NEW TECH NETWORK SCHOOL
S T E M

Free/Reduced Lunch Program Eligible

English Language Learners


Ethnicity

8% – African American
3% – Asian
14% – Filipino
52% – Latino
8% – Multiracial
14% – White



## Building a Collaborative School Culture

Building a collaborative professional culture has been a priority for principal Donna Drago since her first day. From frequent monitoring of how teachers were getting along in their first year to the schools' Culture Committee today, Drago has facilitated a staff culture that prioritizes deep collaboration, risk taking, and a growth mindset: "We gave ourselves permission to fail, to talk about gaps, to bring these things forward. I always say it never amazes me when someone has a

better idea. You have to give people an opportunity to have a conversation, and this group is really good. They're not afraid to participate." Although there were inconsistent collaboration structures at NJMS several years ago, Drago has had success in guiding grade level teams in managing their own collaboration time together. Teachers meet formally two hours a week, but spend considerably more time informally collaborating. As one teacher noted, "If you need help from another teacher here, it doesn't matter if he or she is in your grade level. If you can't think of what to do, if you're confused, you can ask anyone. They'll try to work with you to come up with good strategies to help with your lesson."

## Refining STEM-Focused PBL Instruction

After spending two years developing a range of projects, the NJMS staff have evolved from project designers to project enhancers. With the guidance of their Instructional Specialist, Lisa Anderson, the teachers this year revised every project to ensure close alignment to magnet standards and the Common Core State Standards. They also paid greater attention to integrating foundational literacy skills throughout their projects, deciding which reading skills to be taught within projects and others alongside them. Finally, they made projects more authentic by looking at ways to incorporate a range of audiences and community partners so students take greater ownership over the end products. Each grade level now has a set of 4 to 6 rigorous projects that they know are STEM-based and well aligned to both their magnet standards and student interests.

## Future Directions

Although NJMS is visited throughout the year by hundreds of educators interested in learning more about PBL, the staff continualy reflect on ways they can improve their practices in assessments and math. Teachers implement a range of assessments across subject areas, including standardized state tests, district benchmarks, and classroom-based assessments. However, performance based assessments that measure critical thinking, cross-subject content standards, and writing remain a priority for the staff for next year. In addition, the staff are exploring ways to incorporate more projects into their newly adopted Bridges Math curricular program. While they've been integrating the 4Cs into their math lessons, the staff will examine ways to further incorporate deeper levels of math into current projects.

# Project Snapshot

## Motion, Force, and Models – 3rd Grade




### Research Plan

*3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.*

*3-PS2-2. Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion.*

Students explore and discuss simple machines, technological processes, and industrial engineering. They learn about the connections between the physics of simple machines and their uses in industrial processes. Students learn how various simple machines make work easier by either reducing the amount or changing the direction of force required to move a load. Students also learn how industrial engineers use simple and complex machines in their jobs.

Throughout the project, students will collaborate to create and revise simple machines, including lever, wheel & axle, pulley, and screw. Students will write conclusions after building each product and reflect on how they made their design more effective. As a final writing task, students will reflect on their learning and write about how simple machines can help their everyday lives. They will present their models to families at Exhibition Night.

"My favorite part of school is when we do a new project. There's always something fun to do. My teacher told us we were going to work on architecture and maps to help build a new school and we worked in teams. We got our laptops and went on Google Earth. We studied modern, gothic, Tudor architecture... We looked at all kinds of buildings."

– Napa Junction Magnet School 4th Grader

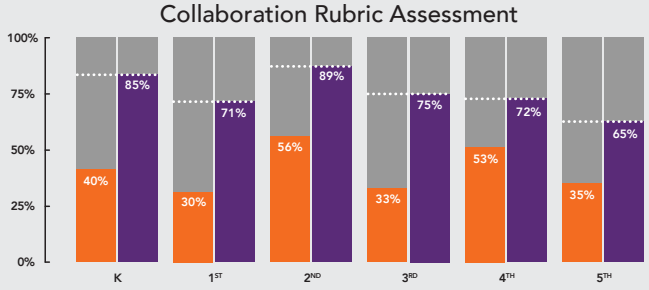
## Assessing 21st Century Skills

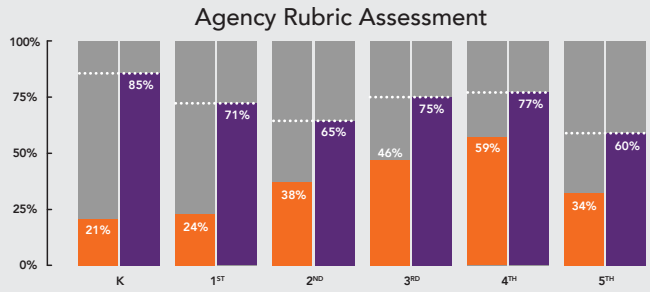
The NJMS principal and teachers saw the importance of developing rubrics to assess students across their magnet standards of agency, collaboration, oral communication, engineering design process, and digital communication. Last year, the entire teaching staff spent hours deconstructing standards, examining how skills build from one grade level to the next, and ultimately, creating a set of student-friendly rubrics. The rubrics are incorporated into every PBL unit and students are assessed on at least 3 of the areas on each activity with the expectation of addressing all of the standards within the scope of the academic year. Students themselves also utilize the rubrics both in reflecting on their own goals and progress, as well as in developing team contracts with their peers.

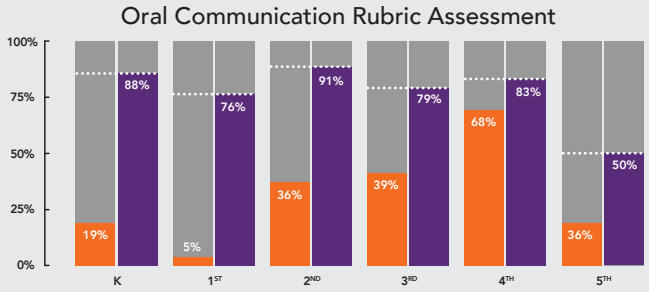
# Napa Junction Magnet

## Results

In 2015, NJMS teachers began assessing students using the magnet standards rubrics they developed. Projects, activities, quizzes, and writing tasks were assessed for individual students and results were collected at the beginning and end of the school year. The results displayed in these graphs show increases across grade levels — between +14% and +71% across grade levels in oral communication, between +19% and +45% in collaboration, and between +18% and +64 in agency.

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