***Santa Fe High School***

***Innovation Academy Vision:***

Our vision is to engage and empower students by developing their problem solving, critical thinking and technology skills while at the same time developing their sense of personal and social responsibility so as to enable them to design, create and maintain solutions for a rapidly changing world. In doing so, we will:

* Forge dynamic partnerships with outside entities, leveraging resources inside and outside our institution.
* Create an environment where new ideas, risk taking, & innovation are encouraged.
* Embrace a Design, Make, Play methodology anchored around a community Makerspace.
* Offer Programs of Study that integrate core academic knowledge with student / teacher selected skills (including a variety of computer programming languages).
* Provide access to 21st century technology to both students and our partners; redesigning curriculum for a new generation.
* Connect student work to larger audiences, thereby building value in our community.
* Graduate all students “Innovation Ready”, with access to both a high school diploma and Associates Degree in either Computer Science or Engineering / Design.

***SFHS Innovation Core Values:***

1. **Curiosity, engagement and motivation:** *Looking for problems to address, seeking opportunities and being resourceful, taking initiative, overcoming barriers, persisting, the pursuit of a passion, an intrinsic reason for participating.*
2. **Relevancy:** *Redefining core classes so that students see their value in the world around them, and helping students to recognize that their personal passions fit into a larger framework.*
3. **Skills and knowledge:** *Skills in tools and technology, materials literacy, cooperation and collaboration, communication, leadership, entrepreneurship and knowledge of content that transcends disciplinary lines and encourages interdisciplinary learning.*
4. **Collaboration, communication, character, and community:** *Learning from and with others, feeling a sense of belonging, building off other people’s ideas, sharing results, believing that everyone on the team has something to contribute, joining a community of practice and having students’ work create value within that community.*
5. **Creativity:** *The capacity to expect a diversity of solutions, acquiring a vocabulary for innovative thinking and innovative doing, thinking in divergent ways, going beyond the directions, improvising.*
6. **Thinking about thinking:** *The ability to self-assess and teach yourself, making the results of your thinking visible, transferring knowledge and skills to other situations.*
7. **Agency, efficacy, legacy:** *Taking pride in ownership, being comfortable with being uncomfortable, willing to fail, having confidence in your capacity to figure things out, knowing that you left matters better off than when you found them.*

**Santa Fe High School**

**Innovation Academy**

The Innovation Academy is a re-design of curriculum and of what it means to be in high school. This is a small school environment founded on resources and tools that connect informal and formal problem-based learning, platforms for collaboration, a physical Makerspace with community context, and programs for our students that allow them to take a leading role in creating, designing, making. The curriculum teaches communication, problem solving, cutting edge technology, and innovation because 21st century jobs rely on these skills. Over four years students become proficient in these areas, developing the skill sets to succeed both in college and the workplace. Problem-based learning is both a curriculum organizer and an instructional strategy that presents a problem that is relevant, real world, and asks students to solve it. Research shows that problem-based learning can be quite effective in meeting the challenges of today’s educational landscape: retention of content, high stakes testing, problem solving skills, attitudes towards learning, etc. The innovation at the heart of this school is taking a problem-based learning model that then connects student work with a larger audience: our community partners. When students solve problems in this context, they will be able to make connections from the classroom to the world around them and thus see the value in what they are learning.

The most important thing we do as teachers is planning lessons and offering feedback. However, the challenge to effective problem-based learning is project planning and connecting to resources. Partnerships facilitate this by defining content, context, adding real world constraints, and facilitating assessment, feedback, and reflection that are beyond the reach of the classroom. Traditional school models often fail to generate these valuable elements due to various constraints. Our goal is to capitalize on the resources that already exist in our community. A partnership is created when students interact with public and private institutions, share resources, and bring value to themselves and the community. Partnerships provide platforms for collaboration and provide an audience for student work.

In education we often equate rigor with more, however rigor does not necessarily mean more, and it most definitely does not mean more of the same thing. Depth of understanding, depth in how students apply what they’ve learned, and depth in the quality of product related to their learning - this is rigor. Students step up their performance when they recognize a larger audience for their work. The audience demands greater effort which fosters ability. Students become smarter by working harder, in the anticipation of pleasing the audience, and pleasing an audience demands rigor.

It is difficult to predict where the jobs in a 21st century economy will come from. Teaching innovation means teaching students to be skilled enough in problem solving and fluent enough with technology that they are more likely to succeed in tomorrow’s economy. Innovation is the process of applying technology in a way that creates new, valuable solutions. In Santa Fe, our schools are technology rich: we have real world problem solving abilities that we have never had before. Our goal is to apply this technology to meet the changing needs of our community. By embracing technology and the *Design, Make, Play* approach to learning we build an environment wherein what students learn as they create is as important as the final product. Design, Make, Play is a methodology arising out of the collaborative work between the New York Hall of Science (NYSCI) and *Make Magazine* and it allows students the space to fail, pick themselves up and re-work a concept until it creates value. This approach is often found in extra-curricular activities. In theater, students get to practice over and over without an audience until they are ready to take the stage in front of a sold out house. Design, Make, Play is a philosophy grounded in the belief that risk taking, constructive failure, and re-grouping builds character and determination. There are few academic tools we can teach students that will be more valuable than ingenuity, resilience, perseverance and optimism. Design, Make, Play based in a Makerspace will help move our students from being users to innovators, from consumers to producers.

Internships and partnerships are also integral to the Innovation Academy learning model; however, internships have taken on a negative connotation to some outside the educational community. Instead of leaving every afternoon to work off-site, our definition of interning is joining a community of practice and having that community value the work that is being done. The Digital Age allows the internship model to be "flipped": students can do work with an outside entity without leaving the campus. In fact, that is part of what we are trying to achieve - building a facility that has professional quality tools that we train the students on and share with the community, so that students and community partners can produce professional quality work in collaboration. This requires a model that allows for movement to and from the campus. Students will need to meet with whomever they are interning and potential clients will need to come in and work with students. By allowing outside entities to come in and work with our students and using the facilities and skillsets that have been built on site to intern with, we are leveraging capacities that Santa Fe Public Schools has built while creating value for the community. By co-locating the Innovation Academy with a Makerspace, we can build a platform to foster flipped internships at the same time leveraging community members and community resources and allow them to create value for our students.

*“Here's to the crazy ones, the misfits, the rebels, the troublemakers, the round pegs in the square holes... the ones who see things differently -- they're not fond of rules... You can quote them, disagree with them, \*

*glorify or vilify them, but the only thing you can't do is ignore them because they change things... they push the human race forward, and while some may see them as the crazy ones, we see genius, because the ones who are crazy enough to think that they can change the world, are the ones who do.”*

[**Steve Jobs**](http://www.quotationspage.com/quotes/Steve_Jobs/)*Computer engineer, industrialist, & innovator (1955 - 2011)*

**REFERENCES:**

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New York Hall of Science (NYSCI)— [www.nysci.org](http://www.nysci.org)

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Dulmage, Stephanie (2012) *Rigor* — *What Does it Really Mean?* - <http://educationvisionleadership.edublogs.org>

Tough, Paul (2012) —*How Children Succeed: Grit, Curiosity, and the Hidden Power of Character*, Houghton Mifflin

Marshall, Kim - [www.marshallmemo.com](http://www.marshallmemo.com)

*Make Magazine* —[www.makezine.com](http://www.makezine.com)

***Associated New Mexico Career Clusters:***

* Energy and Environmental Technologies
* Engineering, Construction, Agriculture, Manufacturing
* Health & Biosciences
* Communications & Information

***Programs of Study:***

* Engineering / Industrial Design
* Architecture / Urban Planning
* Software Application Design
* Product Design / Manufacturing / Entrepreneur
* Science R&D / Applied Research Professional
* Health & Science Informatics

***Potential Local Community Partners:***

* Los Alamos National Labs
* Sandia National Labs
* PNM
* Intel
* Nambe Mills
* AIA Santa Fe (local architecture trade group)
* Santa Fe Institute
* City of Santa Fe
* Santa Fe Engineering Consultants
* Wilson & Co. Engineers
* Santa Fe Software Developers (local trade group)
* Think New Mexico
* US Army
* NM DOT
* LabZY
* Dwell Magazine
* Big Sky Learning
* Project GUTS
* Santa Fe Children’s Museum
* SFCC
* Northern NM College
* UNM ECE