

NOTES TAKEN BY KELLY BYRNE
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ALEXANDRIA, VIRGINIA
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TJ opened in 1989.

*It's culminating activity for every student is a senior research project.

*Need to keep track of alumni to obtain valuable data.

*Trailers outside are called "learning cottages".

One very important thing that creates a positive environment within a STEM school is creating a community of learners made up of students, teachers and administration. It's a different culture and learning environment. There is total buy-in from all stakeholders.

*Principal/student activity that supports that culture: Lunch with Doc - principal has lunch once a week with student leaders to discuss how things are going, upcoming events and/or to gain the students' feedback/input *Support to help students who start to fall behind

TJ offers numerous AP courses, and students take many of them.

*All courses are honors and above

*Students feel a sense of community and are pushed by their peers (this is why some take more AP courses - a variety of courses)

Graduation requirement: 4 Mathematics courses and 4 Science courses *Calculus is the minimum that students can leave TJ having had taken. Most students complete AP Calculus BC by the end of their junior year, so they take a Mathematics elective as seniors. *All students have access to and take a quality Algebra I course in grade 8.

Core Skills and Values

*Critical inquiry and research

*Problem solving

*Intellectual curiosity

*Social responsibility

These skills and values are parts of teachers' evaluations.

What are they doing in their classrooms to foster these skills and values?

This goes above and beyond curriculum.

Business partners give students small grants to fund their research projects (materials and equipment).

*However, some students might have to use expensive equipment at the businesses/labs.

Computer Science is required of every student and must be completed by end of junior year.

*Students need the CS knowledge for grade 12 courses.

Courses and curriculums:

*English + Social Studies = Humanities (team taught in back-to-back periods) *Book called "Napoleon's Buttons" for Chemistry + Humanities course (CHUM) *Grade 9 IBET (Integrated Biology, English + Technology)

- 3 courses, 3 teachers, 3 periods
- Teachers have common planning
- Teachers get time during the summer to plan the whole year ahead of time
- Biology is the science part (data collection and analysis and representation)
- English is the research, reading about the topic, writing about the topic, presentation, presentation skills
- Technology requires students to make something to support the project
- "Integrated" based on a required research project (each group of 3 classes work together on one project)
- Example project: Students count salamander eggs 4 times a year at a local state park to determine the effects of environmental impact

Another class is collecting deer scat in this same park to determine how deer are being affected by environmental impact

- This course is viewed as grade 9s' induction into TJ's four values and skills
- Creates community/identity/learning community
- Students take IBET periods 1-3, 2-4 or 5-7 *Grade 12 Geosystem
- Modeling, data
- Physics, Chemistry, Biology
- Where it all comes together

*Seniors take Research Tech Labs (including Telecommunications Lab) to complete senior research projects

- Must apply to prove interest and fulfillment of requirements
- Students are encouraged to take several elective courses along the way to find out their interests in preparation for this experience
- Prototype Lab: create "something" in CAD and then actually make in the Prototype Lab
- Students keep "research notebooks" in many courses 9-12 in preparation for this experience

Hybrid schedule:

*Day 1 - traditional schedule periods 1-8 *Days 2 and 4 - periods 1-4 *Days 3 and 5 - periods 5-8 Period 8 is used for clubs, mentorships (seniors), tutoring

How **Mathematics** courses vary from traditional *More writing *More proofs *Alg II/Trig course (grade 9 or 10) includes introduction to Statistics to support Science *One option: Alg I (gr 8), Geometry (summer) and Alg II/Trig (gr 9)

-5 weeks during summer (8:00 a.m. to 3:00 p.m.) *Every student must get a graphing calculator *Classrooms are equipped with SmartBoard and TV with TI Presenter *Good texts and effective instruction *Daily formative assessment (students cannot fall behind)

Mentorships for seniors:

- *On-site or in-house
- *Application process - grades, behavior, discipline, attendance, work ethic *Also, create a resume *Ambassadors for the school
- Only accept students, who will be a good impression of TJ, into mentorships
- *Limitation: student must provide own transportation *Only about 1/5 of students actually do
- Many students want to take more courses and electives and forego this experience

Selective admissions process (about 450 per grade level) *Students must enter TJ by grade 10 (must have had Biology and Algebra II prior to that) *Special education depends on disability and level of services needed

Late start every Thursday for teachers to have additional time to work together or for professional development *During that time, students are with Administration doing an activity *50 to 60 minutes (day's schedule is adjusted accordingly)

For teachers, mandatory professional development sessions for week before school starts *Also, attend NCSSSMST workshops

Students have **summer reading assignments** by individual course themes and by school theme *This summer all students read "Three Cups of Tea" in order to reflect upon "What is an educated person's responsibility to the world?"

*Many students also attend summer courses (It's not bad. It's fun, and everyone is at school anyhow.)

-Courses to make up if students took band, art, music, etc. and need to fulfill graduation required courses

-Allows for more scheduling options for students and their interests

-Not sure how this is funded?

*Freshmen orientation during the summer

College visits on a very regular basis (daily right now)

All students eat lunch at the same time (1800 students in 45 minutes) - cafeteria, senior lounge, outside, sit on floors in hallway, classrooms

Be careful of dual enrollment: some colleges won't accept such credits

Library has lots of data bases