Freshman Curriculum & Instruction Update

Grade Weighting & Science Curriculum Sequencing

November 2020
Tracking is Inherently Problematic

- Tracks ensure unequal education, often more closely aligned to race and socioeconomic status than abilities or performance.
- Historically, tracking has been deliberately implemented to separate students of color from their white peers.
- Significant variance occurs between non-honors and honors sections, specifically related to cognitive skills required, and the level and quality of student participation and interaction.


Tinkering Doesn’t Work

- Educators have consistently struggled to divorce the practice of tracking from the inequities it produces.
  - Students of color and those with low socioeconomic backgrounds remain more likely to be placed in lower-level classes;
  - Wealthy, white students are more likely to be placed in upper-level classes, even when controlling for prior achievement.


Detracking is a Research Based Best Practice

- Detracking has been demonstrated to work. A meta-analysis of detracking studies concluded that detracking should be encouraged. Additionally, they reported that
  - students in schools that have detracked saw, on average, no negative effects for average or high ability students.
  - students who had previously been denied access to honors courses consistently saw positive gains.


Detracking is not a Panacea

In order to find success in “leveled-up” spaces, attention needs to be given to a variety of factors...

- expectations for students who had been denied access to honors
- existing social barriers
- drifting instruction toward the middle
- “re-tracking” in otherwise heterogeneous spaces


Discussing Earned Honors

- Internal concerns that...
  - current approach in Models sequence is not scalable
  - earned honors allows platform for bias and mixed-expectations to be structured into the system
  - we would be maintaining a de-facto “tracked” experience
  - earned honors would shift our focus away from rigorous learning for all

- Data from other schools is mixed
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- Leads Differentiation Instruction Cadre for ASCD
- Co-Director of UVA’s Institutes on Academic Diversity (IAD)

“Teach Up” for Excellence

- Human difference is desirable
- Students come from different places & learn at different rates
- We must cultivate a growth mindset, and...
- Adopt a culturally responsive practices
- Rigorous learning is the foundation
- Flexible routines are essential
- Be analytical: “teachers are students of their students”
We will no longer be pursuing an “earned honors” approach.

Beginning in the fall of 2021, the common freshman English, history, science, and world language courses (80-85% of our students) will be designed, taught, and assessed at the honors level.
Science Scope & Sequence Revision Recommendation
Our Goals

- Authentic Alignment to Next Generation Science Standards (NGSS)
- Achieve more consistency in student knowledge & skill outcomes arising from 9th Grade curriculum
- Provide Intentional Opportunities for Access & Acceleration into AP, Dual Credit, & Career Preparation Programming for ALL students
- Maintain academic supports for students who enter Reading, Writing, or performing Math significantly below grade level
The Process

The Team
★ 9 Teachers + 1 Librarian with representation from Biology, Chemistry, Physics, & Earth/Space.

The Meetings
★ 11 hour long sessions all outside of the school day
★ Countless hours of independent research & comparison to other models from across the country
★ Consultation with Representatives from College Board
★ Spanning the entire 19-20 School Year culminating with presentation to and feedback from entire Science faculty
The Recommendation

Key Features

★ Move from four 9th Grade Course Options to two
  ○ Physics-Chemistry
  ○ Physics-Chemistry Supported
★ 9th Grade physical science foundation & 10th Grade Biology for ALL
★ Earlier Access To AP Course, Additional AP Course Options, & Opportunity to obtain AP Diploma
★ Prioritize Student Choice of Courses that Align with Career Aspirations in 11th and 12th Grade
Closer look at 9th Grade Key Features

★ All 9th Grade Students Take Physics-Chemistry Course
  - Aligned with Next Generation Science Standards Approach to Students Getting 1 Year of Physical Science & 1 Year of Life Science
  - Students Obtain Basic Chemistry Foundation Before Studying Molecular Concepts in Biology
  - Systematic Attempt to Generate More Consistency in 9th Grade Student Knowledge & Skill Outcomes
Closer look at 10th Grade Key Features

★ All 10th Grade Students Take Biology
  ○ Assures that All students get Biology, Chemistry, and Physics
  ○ Earlier access to AP Biology for advanced & motivated Science students
    ■ Option with AP Seminar course to further develop research skills & begin pathway towards attainment of AP Diploma
Closer look at 11th Grade Key Features

Choice & College Level Options for All

- Dual Credit GeoScience for Students Not Considering STEM as a their College/Career Focus
- Multiple AP course options for Students Thinking About STEM as a Potential College/Career Focus
- Career Preparation Courses in Automotive, Construction, Engineering, & Healthcare
Earlier & Additional Options for Advanced & Motivated Science Students

- Additional AP Courses
  - Physics 1 to replace Honors Physics
  - Revision of IRDI to AP Research
- Earlier Access Means Students Can Take More AP Science classes without doubling up in any given year
- Access to AP Capstone Diploma Program
Professional Development, & Curriculum Writing

★ Professional Development
○ Constructivist & Inquiry Based Science Instruction Training

★ Curriculum Writing
○ If approved, we have remainder of 20-21 and 21-22 to write the curriculum for the Physics-Chemistry course
○ Additional revisions to Biology Curriculum for NGSS Alignment
  ■ Currently 1 of 2 schools in Biological Sciences Curriculum Study (BSCS) field test for NGSS Aligned Course/Instruction
The revised science curriculum sequence that starts with Phys/Chem as the freshman year curriculum and Biology as the sophomore year curriculum.