

# CPE STEM Task Force

## K-12 Education Sector

### New Ideas

January 31, 2007

- Allow students to direct their educational programs – same standards, different applications – hands-on
- Include stand-alone courses with “T” and “E” (Technology and Engineering)
- Pay attention to what is tested
  - If tests are good and properly timed, they will drive curriculum and instruction
  - Value of AP? Concern of value
  - Concern regarding specialization (eg PLTW)
  - Concern regarding even more change (post KDE revisions)
- Focus on standards (vs. assessments)
  - Standards are less important than instruction
- Teacher Education Preparation
  - 21<sup>st</sup> Century teachers
    - Coaching, “designing” learning
    - Engaged learning environment
    - Need support to elicit deep knowledge
    - Letting students demonstrate knowledge
  - What should teachers be taught
    - Technology
    - Critical thinking, problem-solving skills
    - Job-embedded, continued P/D (eg Louisville “Inquiry Summit” – Exploratorium)
      - 5 “Ei” model
  - What makes BIGGEST difference?
    - High quality engaged person.
    - Give teachers ownership
  - Parents and students need engagement, intention, too
    - In U.S. it is absent, in India, kids know what they intend to do, why they are studying.
  - What world of work looks like.
  - Teachers need to know how formulae (math/science) are used in world of work.
  - CT STEM plan: P/S faculty co-teach high school STEM courses. Business reps, too

- Assessment – New ways to assess problem solving \_\_\_\_\_
- Planning time
  - Year long contracts?
- Change Role of teacher
  - On-going education
  - Restructure time/schedules
  - Content-based prep, P/D
  - On-going evaluation, feedback
  - “Vertical alignment” of teaching
  - Incentives for teaching across levels?
  - Anticipate incoming students (Elementary, Middle and High School)
- Improve Math knowledge
  - Schedule 158 days/school year
  - Role of P/S? Off the hook?
  - Start with elementary teachers
- Does too much math knowledge impede teaching ability?
- Teacher education → Middle school as well as elementary ill prepared
- Problem getting content-based (Masters programs vs. administration, counseling, 5<sup>th</sup> year)
  - On-line ≠ enough
  - Labs, application
  - Differential pay as incentive for content-based masters
- P/S education faculty/colleges need induction/exposure to work world, real world – Whole system is broken
- PLTW – requires math knowledge
- Multiple certifications? Science/Math/Technology?
- Teacher prep/ P/D
  - Content-based, problem solving
  - Address STEM preparation at elementary preparation level
  - Content-based masters
- Teacher contract terms:
  - Differential pay
  - Restructured contract; better use of day, years
  - Time to plan, work across levels → elementary, middle and high school, P/S – coaching
- Students matched to interest. Need to envision futures and work.
  - Closer connection to, awareness of – WORLD OF WORK.
- Structural lever: KEES Scholarship (reward types/quality of courses not GPA)