PIPE-STEM SHOWCASE
PARK CITY SCHOOLS
SEPTEMBER 18, 2015
KEY GAPS IDENTIFIED

- Lack of focused CTE/STEM pathways for students

- Underrepresentation of females and minorities in STEM and CTE courses
### ENROLLMENT DATA

<table>
<thead>
<tr>
<th>Course</th>
<th>14/15 % female enrollment</th>
<th>15/16 % female enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Program</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>34</td>
<td>39</td>
</tr>
<tr>
<td>Calculus A/B</td>
<td>39</td>
<td>44</td>
</tr>
<tr>
<td>Calculus A</td>
<td>20</td>
<td>39</td>
</tr>
<tr>
<td>Physics</td>
<td>35</td>
<td>36</td>
</tr>
<tr>
<td>Engineering Tech Design</td>
<td>5</td>
<td>17</td>
</tr>
<tr>
<td>Pre-engineering</td>
<td>6</td>
<td>16</td>
</tr>
<tr>
<td>Architectural Design</td>
<td>0</td>
<td>31</td>
</tr>
<tr>
<td>Construction</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Robotics</td>
<td>13</td>
<td></td>
</tr>
</tbody>
</table>
FOCUS GROUP DATA

• Students like the variety of course offerings, but want to know more about specific careers.

• Students like and want an emphasis on critical thinking.

• One student commented that he feels challenged and pushes himself to take higher classes, even at the expense of a lower grade.

• Two students, one math and one environmental science, wanted to drop the classes but stayed in because teachers recognized their potential.

• Students feel like the Caucasian students in Honors classes write papers the night before while Latinos have to work at those.
<table>
<thead>
<tr>
<th>Student Expectations</th>
<th>21st Century Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>All students expect to do very well or pretty well in English</td>
<td>82% confident in the ability to produce high-level work</td>
</tr>
<tr>
<td>10% see themselves not doing very well in Math</td>
<td>80% confident that they can set their own learning goals</td>
</tr>
<tr>
<td>7% see themselves not doing very well in Science</td>
<td>88% confident that they can work with students from other backgrounds</td>
</tr>
<tr>
<td>61% confident in managing their own time</td>
<td></td>
</tr>
</tbody>
</table>
SURVEY DATA—CAREER INTERESTS

• Percentage of students interested/very interested in:
  • Medicine—58%
  • Physics—51%
  • Engineering—49%
  • Environmental Science—35%
  • Chemistry—35%
  • Computer Science—32%
  • Energy—24%
  • Mathematics—17%
ROOT CAUSES

Lack of Focused Pathways
- Change of work force with technology
- Lack of marketing to students and parents
- Narrow focus on traditional college prep

Underrepresentation
- Course conflicts based on credits needed
- Fear of course rigor
- Courses viewed as not applicable for those students
WORK PLAN STRATEGIES

1. Created STEM pathways for the 15/16 school year and a plan to communicate those to all stakeholders, to include parents, community members, and businesses.

   • Meetings held with teachers and administrators—14/15

   • Initial meeting held 14/15 with school counselors

   • Pathways developed in:
     • Business
     • Digital Media
     • Engineering
     • Health Sciences

   • Communication plan being developed now

   • Additional changes will be reflected in the 16/17 course catalog
2. Implemented a STEM Career Fair with an emphasis on providing information to female and Hispanic students and their parents.

- STEM Fest held April 18, 2015
- Approximately 150 students and their parents attended—primarily middle and junior high
- Industry representatives attended, with hands-on activities as well as brief career talks
- Positive feedback received from all participants
- Planning for this year’s STEM Fest in progress
STEM Fest 2015
3. Developed/implemented STEM courses and curriculum for elementary and middle school students to encourage interest in STEM subjects for all students.
   - Implemented Engineering is Elementary in all 4 elementary schools—1st-5th—with the PACE teachers
   - All students participated in Day of Code—Coding taught 15/16 to all 1st grade students and after-school group
   - Science coordinator funded by PCEF—first training with 6-8 teachers 9/22/15 on inquiry learning and Defined STEM
   - STEM Academy grant received for 7th and 8th grade CTE courses, 15/16 SY—Professional development held 9/8/15
   - Elementary STEM Endorsement grant received—14 Park City and 4 South Summit teachers in program—collaboration with Provo School District and UVU
WORK PLAN STRATEGIES

3. (cont.)

- Piloted Science A to Z in summer school this year—purchased the program with a PCEF grant for use in the after-school and summer program, as well as throughout the year in K-5
MEASUREMENT/EVALUATION

- Increased enrollment in STEM courses and Pathways at the secondary level—focus on females and minority students
- Increased awareness of STEM careers and opportunities
- Increased focus on STEM in elementary and middle school
- Increased achievement in STEM subjects as measured by SAGE and Galileo
GOING FORWARD

• Communication of Pathways and job outlook data to students, parents, teachers and community members—plan for expansion for SY 16/17

• STEM Fest, 2016—planning and implementation

• Coding—initial implementation, 15/16—five year plan for full implementation in process

• Full implementation of elementary literacy units, with integrated science themes

• Professional development for 6-8 science teachers, with a focus on inquiry project-based learning

• Community engagement series