## Cluster: Health Science
### Pathway: Biotechnology Research and Development

<table>
<thead>
<tr>
<th>EDUCATION LEVELS</th>
<th>GRADE</th>
<th>English/Language Arts</th>
<th>Mathematics</th>
<th>Science</th>
<th>Social Studies/Science</th>
<th>Recommended Electives</th>
<th>Recommended Career and Technical Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIDDLE</td>
<td>7</td>
<td>English 7 (1110)</td>
<td>Pre-Algebra (3112) or Algebra I (3130)</td>
<td>Life Science (4115)</td>
<td>U S History (2354)</td>
<td>7th Grade Exploratory Health and Medical Sciences (8370)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8</td>
<td>English 8 (1120)</td>
<td>Algebra I (3130) or Geometry (3143)</td>
<td>Physical Science (4125)</td>
<td>Civics &amp; Economics (2357)</td>
<td>8th Grade Exploratory Health and Medical Sciences (8370)</td>
<td></td>
</tr>
</tbody>
</table>

**Career Assessment:** Identify an appropriate career assessment instrument at the middle school level used to help students and their parents plan for high school:

- VA Wizard

**Other Assessment (please indicate):**

<table>
<thead>
<tr>
<th>SECONDARY</th>
<th>GRADE</th>
<th>Honors English (1130)</th>
<th>Honors English (1140)</th>
<th>Honors English (1150)</th>
<th>Honors English (1160)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Honors English (1130)</td>
<td>Geometry (3143) or Algebra II (3135) or Trigonometry</td>
<td>Biology (4310)</td>
<td>World History/Geography I (2215)</td>
<td>Economics and Personal Finance (6120)</td>
</tr>
<tr>
<td>10</td>
<td>Honors English (1140)</td>
<td>Algebra II (3135) or Trigonometry or</td>
<td>Chemistry</td>
<td>World History/Geography II (2216)</td>
<td>Health &amp; PE (2 years)</td>
</tr>
<tr>
<td>11</td>
<td>Honors English (1150)</td>
<td>Trigonometry/Elementary Functions or AP Calculus AB</td>
<td>Biology AP/Physics/Physiology/Forensics</td>
<td>US/VA History (2360)</td>
<td>Other Electives to Complement Pathway (Core Academic and CTE): AP Biology (4370)</td>
</tr>
<tr>
<td>12</td>
<td>Honors English (1160)</td>
<td>Elementary Functions or Calculus or Probability and Stats or AP Calculus AB or AP Calculus BC</td>
<td>Physics/Physiology/Anatomy/Forensics</td>
<td>AP History</td>
<td>AP Computer Science (3185)</td>
</tr>
</tbody>
</table>

**Additional Learning Opportunities:**
- CTE Organization(s): DECA, FBLA, FCCLA, FFA, FEA, HOSA, SkillsUSA, TSA

**Work-Based Learning:**
- Career Research
- Cooperative Education
- Internship
- Mentorship
- Job Shadowing
- Service Learning Project
- Student Apprenticeship

**List related certifications/credentials approved by VDOE and offered locally:**
- http://www.cteresource.org/apg (Go to Certification - License Section.)
- Workplace Readiness Skills for the Commonwealth (CTECS)
- PLTW Examination: Biotechnical Engineering