**DISCLAIMER:** This material is based upon work supported by the GK-12 program of the National Science Foundation, under Award #DGE0231509. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
Mission Statement

- PBL is a HY “HIGH” POWERED way of teaching HA & P.
- It elevates the level of consciousness of the student as it pertains to science.
- Gives practical applications for theories.
- Makes complete understanding attainable.
  - Students are less detached from the lessons.

The Team

- SOUTHSIDE HIGH SCHOOL
  - Juanice Woodall
- EMORY UNIVERSITY
  - Muhsinah L. Holmes, Chemistry
  - Charlene D. Cole, Neuroscience
- SPELMAN COLLEGE
  - Kirstin Byrd, Social Psychology
Outline

Incorporation of PBL in HA&P
  Scope and Sequence
  QCC’s and Standards

Case 1:
  Cases in Progress
  Summary

Incorporation of PBL in HA&P
Human Anatomy and Physiology, Fifth Ed.
By Elaine N. Marieb
(Holyoke Community College)
## Scope and Sequence

<table>
<thead>
<tr>
<th>Week(s)</th>
<th>Week</th>
<th>Unit Name</th>
<th>Unit</th>
<th>Standard (BIO)</th>
<th>Case</th>
<th>2014-15</th>
<th>2015-16</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-9 weeks</td>
<td>1</td>
<td>Scientific Process Skills</td>
<td>1</td>
<td>1-3</td>
<td>Basic Case Intro to Biology</td>
<td>10-11-10-20</td>
<td>10-12</td>
</tr>
<tr>
<td>8/19-8/23</td>
<td>0-5</td>
<td>Org. of the Body</td>
<td>2</td>
<td>4-7</td>
<td>Chemistry of Life Case: What Can &quot;You&quot; Eat...Food as Medicine?</td>
<td>11-11-11-13</td>
<td>12-14</td>
</tr>
<tr>
<td>8/16-9/10</td>
<td>6-8</td>
<td>Muscular Systems Case: &quot;The Rinky Dink&quot;</td>
<td>3</td>
<td>8-11</td>
<td>Skeletal System Case: &quot;Don Bones&quot;</td>
<td>11-22-12/3</td>
<td>15-16</td>
</tr>
<tr>
<td>9/13-9/17</td>
<td>0-5</td>
<td>Covering, Support, Movement</td>
<td>4</td>
<td>9-12</td>
<td>Cardio &amp; Respiration</td>
<td>12/6-12/10</td>
<td>17</td>
</tr>
<tr>
<td>10/14-10/18</td>
<td>0-5</td>
<td>Review Midterm Exam</td>
<td>All</td>
<td>12/15-12/17</td>
<td>Blood, Urinary, nutrition</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td>11/11-11/15</td>
<td>0-5</td>
<td>Review Exam</td>
<td>All</td>
<td>12</td>
<td>Nervous System Case: &quot;What's wrong with Brandy?&quot;</td>
<td>13</td>
<td>19</td>
</tr>
</tbody>
</table>

## Content in Brief

### Unit 1: Organization of the Body
- Chapter 1: The Human Body: An Orientation
- Chapter 2: Cells, Tissues, and Organs
- Chapter 3: Cells: The Living Unit
- Chapter 4: Tissue: The Living Fabric

### Unit 2: Covering, Support, and Movement of the Body
- Chapter 5: The Integumentary System
- Chapter 6: Bones and Bone Tissue
- Chapter 7: The Skeletal System
- Chapter 8: Joints
- Chapter 9: Muscles and Muscle Tissue
- Chapter 10: The Muscular System

### Unit 3: Regulation and Integration of the Body
- Chapter 11: Fundamentals of the Nervous System and Nervous Tissue
- Chapter 12: The Central Nervous System
- Chapter 13: The Peripheral Nervous System and Reflex Activity
- Chapter 14: The Autonomic Nervous System
- Chapter 15: Neural Integration
- Chapter 16: The Special Senses
- Chapter 17: The Endocrine System

### Unit 4: Maintenance of the Body
- Chapter 18: Blood
- Chapter 19: The Cardiovascular System: The Heart
- Chapter 20: The Cardiovascular System: Blood Vessels
- Chapter 21: The Lymphatic System
- Chapter 22: Nonspecific Body Defenses and Immunity
- Chapter 23: The Respiratory System
- Chapter 24: The Digestive System
- Chapter 25: Nutrition, Metabolism, and Body Temperature Regulation
- Chapter 26: The Urinary System
- Chapter 27: Fluid, Electrolyte, and Acid-Base Balance

### Unit 5: Continuity
- Chapter 28: The Reproductive System
- Chapter 29: Pregnancy and Human Development
- Chapter 30: Aging
Joyce visits her grandparents in Savannah for the summer.

Grandpa doesn’t remember her. He calls her “young lady”.

Neighbor’s son, Brandon has observed Grandpa Henry’s memory loss.

He tells Joyce that Grandpa’s hands have been shaking and that he and his father are fixing up a room downstairs for him.

Joyce was not told that Grandpa was sick... What is wrong with Grandpa?
QCC’s and Standards

**Topic:** Nervous System

**Standard:** Relates the sensory coordination and regulatory functions of the nervous system.
11.1 Explains the divisions of the nervous system and their activity in response to sensory input.
11.2 Describes the cells of the nervous system.
11.3 Distinguishes between resting and action membrane potentials.
11.4 Differentiates between afferent and efferent fibers.
11.5 Identifies disorders of the nervous system.

STUDENT PRODUCTS

- **Oral/power point presentation:** outlining the divisions, parts, and functions of the nervous system
- **Skit:** Joyce, Grandma, and Grandpa visiting the doctor, in which the doctor explains the symptoms and causes of Grandpa’s disorder
- **Group member evaluation:** to allow students to express how the group worked together
- **Brochure:** to allow students to put together information that they may present to parents and grandparents
RUBRICS

<table>
<thead>
<tr>
<th>Oral Presentation Skills</th>
<th>Points</th>
<th>Self Assessment</th>
<th>Teacher Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provided depth in presentation of ideas</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation was well-organized and coherent</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Creative use of visual aids</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective delivery of message</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective use of body language</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective use of voice modulation</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective use of facial expressions</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Effective use of gestures</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of appropriate language and vocabulary</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of appropriate tone and style</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use of appropriate visual aids</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total points</td>
<td>50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

HYPOWERED HA&P

4 A NEW AGE

HY-

- Problem-based
- Objectives Mastered
- Work Independently
- Enthusiastic
- Realistic
ACKNOWLEDGEMENTS

- SOUTH SIDE HIGH SCHOOL
- ATLANTA PUBLIC SCHOOL SYSTEM
- ADRIAN EPPS
- JOSEPH B. JUSTICE, JR.
- PAT MARSTELLER
- PREETHA RAM
- JORDAN ROSE
- PRISM FELLOWS
- NATIONAL SCIENCE FOUNDATION,
  AWARD #DGE0231900