

## PA Standards Aligned with SIM Biology Labs

Lab	PA Standards Applied
Investigating Enzymes (AP Lab #2)	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.2.12B, C; 3.3.10 A, B; 3.3.12B, 3.7.10 A, B; 3.7.12 A, B)
Energy in Foods	(PA Standards 3.10.D; 3.12.C; 3.2.10A, B; 3.2.12A, B, C; 3.4.10B; 3.4.12B; 3.7.10A, B)
The Effect of Acids and Bases on Biological Materials	(PA Standards 3.1.12C; 3.2.10A, B; 3.4.10A; 3.7.10A, B; 3.7.12A, B)
Protein Electrophoresis	(PA Standards 3.2.10A, B, C; 3.3.10D; 3.7.10A, B)
Why Are Cells Small?	(PA Standards 3.1.10B, D, E; 3.1.12B, D, E; 3.2.10A, B; 3.2.12A, B; 3.3.10B; 3.3.12B; 3.6.10B; 3.6.12B; 3.7.10A, B; 3.7.12A, B)
Investigating Diffusion (AP Lab #1)	(PA Standards 3.1.12.C; 3.2.10A, B; 3.3.10A, B; 3.7.10A, B; 3.7.12A, B)
What Chemicals can Affect Biological Membranes?	(PA Standards 3.1.12C; 3.2.10A, B; 3.3.10A, B, 3.4.10A; 3.7.10A, B; 3.7.12A, B)
Are Seeds Alive? (AP Lab #5 – Cellular Respiration)	PA Standards 3.1.12C; 3.2.10A, B; 3.3.10A, B; 3.7.10A, B)
Which Sugars do Yeast Cells Prefer?	(PA Standards 3.1.12C; 3.2.10A, B; 3.3.10A, B; 3.7.10A, B; 3.7.12A, B)
Does Temperature Affect Cellular Respiration?	(PA Standards 3.1.12C; 3.2.10A, B; 3.3.10A, B; 3.7.10A, B; 3.7.12A, B)
Lactase Action	(PA Standards 3.1.12C; 3.2.10A, B; 3.3.10A, B; 3.7.10A, B; 3.7.12A, B)
Preparing a Human Karyotype	(PA Standards 3.3.10A, B, C; 3.6.12A)
DNA Fingerprinting	(PA Standards 3.1.10C; 3.1.12C;

	3.2.10B, C; 3.2.12B, C; 3.3.10C; 3.3.12C)
Electrophoresis of Restriction Digests of Lambda DNA (AP Lab #6B)	(PA Standards 3.1.10C; 3.1.12C; 3.2.10B, C; 3.2.12B, C; 3.3.10C; 3.3.12C)
Genetic Engineering in the Classroom (pGLO Bacterial Transformation – AP Lab #6A)	(PA Standards 3.1.10D; 3.3.10A, B; 3.3.12C; 3.6.12A; 3.7.10A, B; 3.8.10A, C; 3.8.12A)
Polymerase Chain Reaction	(PA Standards 3.1.10E; 3.1.12E; 3.2.10B, C, D; 3.2.12B, C, D; 3.3.10B, C; 3.3.12B, C; 3.6.12A; 3.7.10A, B; 3.7.12A, B; 3.8.12A; 4.4.12B;)
Protein Fingerprinting: Something Fishy About Evolution?	(PA Standards 3.2.10A, B, C; 3.3.10D; 3.7.10A, B)
Acid Rain	PA Standards 3.1.10E; 3.1.12C; 3.2.10A, B, C; 3.3.10A; 3.5.12C, D; 3.7.10A, B)
Biodiversity and Ecosystems	(PA Standards 3.2.10A, B, C; 3.3.10A, D; 3.7.10A, B; 3.7.12A, B)
Population Dynamics	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.3.10A; 3.7.10A, B; 3.7.12A, B)
Measuring Primary Productivity (AP Lab # 12)	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.6.12A; 3.7.10A, B; 3.7.12A, B)
Water Quality Testing	(PA Standards 3.2.10A, B, C; 3.3.10B; 3.5.10D; 3.5.12C; 3.6.12A; 3.7.10A, B; 4.1.12C)
Bacterial Inhibition	(PA Standards 3.1.10E; 3.2.10A, B, C; 3.3.10A, B, C, D; 3.6.12A; 3.7.10A, B)
Bacterial Transformation (pGLO) (AP Lab # 6A)	(PA Standards 3.1.10D; 3.3.10A, B; 3.3.12C; 3.6.12A; 3.7.10A, B; 3.8.10A, C; 3.8.12A)
Gram Stain Technique	(PA Standards 3.2.10A; 3.3.10A, B; 3.3.12A, B; 3.7.10A)

Investigating Water Movement in Plants (AP Lab #9)	(PA Standards 3.1.10B, E; 3.1.12B, C; 3.2.10A, B, C; 3.2.12A, B, C; 3.3.10A, B; 3.3.12A, B; 3.7.10A, B; 3.7.12A, B)
What Factors Affect the Rate of Photosynthesis?	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.3.10A, B; 3.6.12A; 3.7.10A, B; 3.7.12A, B)
Photosynthesis and Respiration (AP Lab #4)	(Pa Standards 3.1.10E; 3.2.10B, C; 3.2.12B, C; 3.3.10B; 3.3.12B)
How Does Temperature Affect Poikilotherms?	(PA Standards 3.1.12C; 3.2.10A, B; 3.3.10A, B; 3.7.10A, B; 3.7.12A, B)
Biology Crime Scene	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.2.12C; 3.3.10A, B, C; 3.3.12C; 3.7.10A, B; 3.7.12A, B; 3.8.10A, C)
Species Substitution	(PA Standards 3.2.10A, B, C; 3.3.10D; 3.7.10A, B)
EKG/Heart Rate/Respiration (AP Lab #10)	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.3.10A; 3.3.12A; 3.7.10A, B; 3.7.12A, B)
Pressures Underfoot	(PA Standards 3.1.10B, D; 3.1.12A, B, D; 3.2.10B, C; 3.2.12B, C; 3.3.12A, B; 3.6.10A; 3.6.12A; 3.7.10A, B; 3.7.12A, B)
Effect of Alcohol on Biological Membranes	(PA Standards 3.1.12C; 3.2.10A, B, C; 3.3.10A, B; 3.6.12A, B; 3.7.10A, B; 3.7.12A, B)
Disease Transmission (ELISA)	(PA Standards 3.2.10 A, B, C; 3.3.10A)
Blood Typing	(PA Standards 3.1.10E; 3.2.10B; 3.2.12B; 3.3.10A, B, C)
Transfusion Confusion	(PA Standards 3.1.10E; 3.2.10B; 3.2.12B; 3.3.10A, B, C)
Antibiotic Activity	(PA Standards 3.1.10E; 3.2.10A, B, C; 3.3.10A, B, C, D; 3.6.12A; 3.7.10A, B)