

# Van Buren School District Science Course Outlines 7th-12th Grade

<u>LIFE SCIENCE</u> 7 <sup>th</sup> Grade	<u>EARTH SCIENCE</u> 8 <sup>th</sup> Grade	<u>PRE-AP EARTH SCIENCE</u> 8 <sup>th</sup> Grade	<u>PHYSICAL SCIENCE</u> 9 <sup>th</sup> Grade	<u>PRE-AP PHYSICAL SCIENCE</u> 9 <sup>th</sup> Grade
<ol style="list-style-type: none"> <li>1. Structure and Function</li> <li>2. Body Systems</li> <li>3. Heredity and Reproduction</li> <li>4. Plant Systems</li> <li>5. Populations and Ecosystems</li> <li>6. Matter</li> <li>7. Motion</li> <li>8. Earth Systems</li> <li>9. Energy</li> <li>10. Atmosphere</li> <li>11. Weather</li> <li>12. Climate</li> <li>13. Space</li> <li>14. Earth History</li> </ol>	<ol style="list-style-type: none"> <li>1. Earth System</li> <li>2. Magnetic Fields</li> <li>3. Topographic Maps</li> <li>4. Landforms</li> <li>5. Cycles</li> <li>6. Soil</li> <li>7. Erosion</li> <li>8. Rivers</li> <li>9. Earth's History</li> <li>10. Changing Earth</li> <li>11. Global Warming</li> <li>12. Water Currents</li> <li>13. Space Science</li> <li>14. Solar System</li> <li>15. Sun Earth Moons</li> <li>16. Planets, Galaxies</li> <li>17. Energy</li> <li>18. Properties of Matter</li> <li>19. Waves</li> <li>20. Sound</li> <li>21. Electromagnetic Waves</li> <li>22. Electromagnetism</li> <li>23. Electromagnet</li> <li>24. Electricity</li> <li>25. Life Structure and Function</li> <li>26. Heredity and Reproduction</li> <li>27. Regulation and Behavior</li> <li>28. Populations and Ecosystems</li> </ol>	<ol style="list-style-type: none"> <li>1. Earth System</li> <li>2. Magnetic Fields</li> <li>3. Topographic Maps</li> <li>4. Landforms</li> <li>5. Cycles</li> <li>6. Soil</li> <li>7. Erosion</li> <li>8. Rivers</li> <li>9. Earth's History</li> <li>10. Changing Earth</li> <li>11. Global Warming</li> <li>12. Water Currents</li> <li>13. Space Science</li> <li>14. Solar System</li> <li>15. Sun Earth Moons</li> <li>16. Planets, Galaxies</li> <li>17. Energy</li> <li>18. Properties of Matter</li> <li>19. Waves</li> <li>20. Sound</li> <li>21. Electromagnetic Waves</li> <li>22. Electromagnetism</li> <li>23. Electromagnet</li> <li>24. Electricity</li> <li>25. Life Structure and Function</li> <li>26. Heredity and Reproduction</li> <li>27. Regulation and Behavior</li> <li>28. Populations and Ecosystems</li> </ol>	<ol style="list-style-type: none"> <li>1. The Nature of Science &amp; Laboratory Equipment and Safety</li> <li>2. Physical Science Methods</li> <li>3. Motion</li> <li>4. Acceleration &amp; Momentum</li> <li>5. Energy</li> <li>6. Machines</li> <li>7. Waves &amp; Sound</li> <li>8. Light</li> <li>9. Mirrors &amp; Lenses</li> <li>10. Electricity</li> <li>11. Solids, Liquids, &amp; Gases</li> <li>12. Classification of Matter</li> <li>13. Atomic Structure</li> <li>14. Element Properties &amp; the Periodic Table</li> <li>15. Chemical Bonds</li> <li>16. Organic &amp; Biological Compounds</li> <li>17. Solutions</li> <li>18. Chemical Reactions</li> <li>19. Acids, Bases, &amp; Salts</li> <li>2000 Version</li> </ol>	<ol style="list-style-type: none"> <li>1. The Nature of Science &amp; Laboratory Equipment and Safety</li> <li>2. Physical Science Methods</li> <li>3. Motion</li> <li>4. Acceleration &amp; Momentum</li> <li>5. Energy</li> <li>6. Machines</li> <li>7. Waves &amp; Sound</li> <li>8. Light</li> <li>9. Mirrors &amp; Lenses</li> <li>10. Electricity</li> <li>11. Solids, Liquids, &amp; Gases</li> <li>12. Classification of Matter</li> <li>13. Atomic Structure</li> <li>14. Element Properties &amp; the Periodic Table</li> <li>15. Chemical Bonds</li> <li>16. Organic &amp; Biological Compounds</li> <li>17. Solutions</li> <li>18. Chemical Reactions</li> <li>19. Acids, Bases, &amp; Salts</li> <li>2000 Version</li> </ol>

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<b><u>CHEMISTRY</u></b> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>	<b><u>PRE-AP HONORS CHEMISTRY</u></b> <b>11<sup>th</sup> Grade</b>	<b><u>AP CHEMISTRY</u></b> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>	<b><u>PHYSICS</u></b> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>	<b><u>HONORS PHYSICS</u></b> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>
<ol style="list-style-type: none"> <li>1. Chemical Foundation</li> <li>2. Measuring &amp; Calculating</li> <li>3. Matter</li> <li>4. Atomic Structure</li> <li>5. Periodic Table</li> <li>6. Elements &amp; Periodic Properties</li> <li>7. Periodic Trends</li> <li>8. Chemical Formulas</li> <li>9. The Mole</li> <li>10. Chemical Reactions</li> <li>11. Chemical Bonding</li> <li>12. Reaction Types</li> <li>13. Molecular Shape</li> <li>14. Polar Molecules</li> <li>15. Kinetic Theory</li> <li>16. Solids &amp; Liquids</li> <li>17. Gases</li> <li>18. Gases and the Mole</li> </ol>	<ol style="list-style-type: none"> <li>1. Chemical Foundation</li> <li>2. Measuring &amp; Calculating</li> <li>3. Matter</li> <li>4. Atomic Structure</li> <li>5. Periodic Table</li> <li>6. Elements &amp; Periodic Properties</li> <li>7. Periodic Trends</li> <li>8. Chemical Formulas</li> <li>9. The Mole</li> <li>10. Chemical Reactions</li> <li>11. Chemical Bonding</li> <li>12. Reaction Types</li> <li>13. Molecular Shape</li> <li>14. Polar Molecules</li> <li>15. Kinetic Theory</li> <li>16. Solids &amp; Liquids</li> <li>17. Gases</li> <li>18. Gases and the Mole</li> </ol>	<ol style="list-style-type: none"> <li>1. Gases</li> <li>2. Thermochemistry</li> <li>3. Atomic Structure</li> <li>4. Atomic Periodicity</li> <li>5. Chemical Bonding</li> <li>6. Liquids &amp; Solids</li> <li>7. Properties of Solutions</li> <li>8. Chemical Reactions</li> <li>9. Chemical Kinetics</li> <li>10. Chemical Equilibrium</li> <li>11. Acids &amp; Bases</li> <li>12. Applications of Aqueous Equilibria</li> <li>13. Spontaneity, Entropy &amp; Free Energy</li> <li>14. Electrochemistry</li> <li>15. Representative Elements</li> <li>16. Transition Metals &amp; Coordination Chemistry</li> <li>17. Nuclear Chemistry</li> <li>18. Organic Chemistry</li> <li>19. Biochemistry</li> </ol>	<ol style="list-style-type: none"> <li>1. Units &amp; Measurements</li> <li>2. Linear Motion</li> <li>3. Vectors</li> <li>4. Newton's Laws</li> <li>5. Momentum</li> <li>6. Energy</li> <li>7. Circular Motion</li> <li>8. Center of Gravity</li> <li>9. Rotational Mechanics</li> <li>10. Universal Gravitation</li> <li>11. Gravitational Interactions</li> <li>12. Solids</li> <li>13. Liquids</li> <li>14. Gases</li> <li>15. Temperature, heat and Expansion</li> <li>16. Heat Transfer</li> <li>17. Change of Phase</li> <li>18. Thermodynamics</li> <li>19. Vibration and Waves</li> <li>20. Sound</li> <li>21. Light</li> <li>22. Color</li> <li>23. Reflection and refraction</li> <li>24. Lenses</li> <li>25. Diffraction and Interference</li> <li>26. Electrostatics</li> <li>27. Electrical Fields</li> <li>28. Electric Current</li> <li>29. Magnetism</li> <li>30. Electromagnetic Induction</li> <li>31. Atoms and Quantum Theory</li> <li>32. Atomic Nucleus and Radioactivity</li> <li>33. Nuclear Reactions</li> </ol>	<ol style="list-style-type: none"> <li>1. Units &amp; Measurements</li> <li>2. Kinematics</li> <li>3. Dimensional Motion</li> <li>4. Force and Motion</li> <li>5. Work and Energy</li> <li>6. Momentum: Collision and Conservation</li> <li>7. Gravity and Circular Motion</li> <li>8. Solids and Fluids</li> <li>9. Temperature and Heat</li> <li>10. Thermodynamic Laws</li> <li>11. Vibrations and Basic Waves</li> <li>12. Sound</li> <li>13. Electric charge, Force and Conductors</li> <li>14. Potential Energy and Capacitance</li> <li>15. Current and Resistance</li> <li>16. Series and Parallel Circuits</li> <li>17. Magnetism</li> <li>18. Electromagnetic Inductance</li> <li>19. Basic AC Circuits</li> <li>20. Reflection and Refraction</li> <li>21. Mirrors and Lenses</li> <li>22. Relativity and Einstein</li> <li>23. Quantum Physics</li> <li>24. Nuclear Physics</li> </ol>

<u><b>ANATOMICAL DESIGN</b></u> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>	<u><b>HONORS ANATOMY &amp; PHYSIOLOGY</b></u> <b>12<sup>th</sup> Grade</b>	<u><b>OCEANOGRAPHY</b></u> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>	<u><b>METEOROLOGY</b></u> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>	<u><b>ASTRONOMY</b></u> <b>11<sup>th</sup>-12<sup>th</sup> Grade</b>
<ol style="list-style-type: none"> <li>1. Art Design/Structure</li> <li>2. Cell</li> <li>3. Histology</li> <li>4. Integument</li> <li>5. Skeletal</li> <li>6. Muscular</li> <li>7. Nervous</li> <li>8. Endocrine</li> <li>9. Reproductive</li> <li>10. Digestive</li> <li>11. Respiration</li> <li>12. Circulation</li> <li>13. Urinary</li> </ol>	<ol style="list-style-type: none"> <li>1. Scientific Method</li> <li>2. Cell Chemistry</li> <li>3. Genetic Transfer: DNA</li> <li>4. Intro Body Organ Terminology</li> <li>5. Tissues</li> <li>6. Integumentary System</li> <li>7. Skeletal System</li> <li>8. Muscular System</li> <li>9. Nervous System</li> <li>10. Senses</li> <li>11. Endocrine System</li> <li>12. Circulatory System</li> <li>13. Lymphatic System</li> <li>14. Immune System</li> <li>15. Digestive System</li> <li>16. Respiratory System</li> <li>17. Urinary System</li> <li>18. Excretory System</li> <li>19. Male Reproductive System</li> <li>20. Female Reproductive System</li> <li>21. Pregnancy Growth and Development</li> <li>22. Fetal Pig Dissection</li> <li>23. Career Study</li> </ol>	<ol style="list-style-type: none"> <li>1. History</li> <li>2. Technology</li> <li>3. Topography</li> <li>4. Plate Tectonics</li> <li>5. Ocean Movements</li> <li>6. Currents</li> <li>7. Waves</li> <li>8. Tides</li> <li>9. Coastal formations</li> <li>10. Erosion</li> <li>11. Beaches</li> <li>12. Coral Reefs</li> <li>13. Water</li> <li>14. Hydrologic Cycle</li> <li>15. Marine Life Plankton-Plants and Animals</li> <li>16. Marine Zones</li> <li>17. Limiting Factors</li> <li>18. Environment</li> <li>19. Resources</li> <li>20. Protection</li> <li>21. Ocean Weather Phenomena</li> </ol>	<ol style="list-style-type: none"> <li>1. Atmosphere</li> <li>2. Composition</li> <li>3. Cycles</li> <li>4. Greenhouse Effect</li> <li>5. Coriolis Effect</li> <li>6. Wind Patterns</li> <li>7. Water in the Atmosphere</li> <li>8. Water Cycle</li> <li>9. Moisture and Measurement</li> <li>10. Clouds</li> <li>11. Precipitation</li> <li>12. Weather Formations</li> <li>13. Air Masses</li> <li>14. Fronts</li> <li>15. Instruments and Technology</li> <li>16. Maps</li> <li>17. Storms</li> <li>18. Weather Reporting and Predictions</li> <li>19. Climate</li> <li>20. Global Warming</li> </ol>	<ol style="list-style-type: none"> <li>1. Study of the Universe</li> <li>2. Star Groups</li> <li>3. Stars</li> <li>4. Sun</li> <li>5. Solar System</li> <li>6. Moon</li> <li>7. Contributions of NASA and Future of Space Exploration</li> </ol>



<b><u>GEOLOGY</u></b> <b>11<sup>th</sup> – 12<sup>th</sup> Grade</b>	<b><u>BIOLOGY</u></b> <b>10<sup>th</sup> Grade</b>	<b><u>PRE-AP BIOLOGY</u></b> <b>10<sup>th</sup> Grade</b>	<b><u>AP BIOLOGY</u></b> <b>10<sup>th</sup> Grade</b>
<ol style="list-style-type: none"> <li>1. Earth</li> <li>2. Atoms</li> <li>3. Minerals</li> <li>4. Rocks</li> <li>5. Maps</li> <li>6. Plate Tectonics</li> <li>7. Relative Age</li> <li>8. Absolute Age</li> <li>9. Geologic History</li> <li>10. Earthquakes</li> <li>11. Volcanoes</li> <li>12. Mountain Building</li> <li>13. Weathering</li> <li>14. Erosion</li> </ol>	<ol style="list-style-type: none"> <li>1. The Nature of Science</li> <li>2. Metric System</li> <li>3. Scientific Method</li> <li>4. Graphing</li> <li>5. Biochemistry</li> <li>6. Cell Structure</li> <li>7. Cell Membrane</li> <li>8. Diffusion and Osmosis</li> <li>9. Photosynthesis and Respiration</li> <li>10. Protein Synthesis</li> <li>11. DNA Replication, translation, transcription</li> <li>12. Mitosis</li> <li>13. Meiosis</li> <li>14. Genetics</li> <li>15. Ecology</li> <li>16. Biodiversity</li> <li>17. Evolution</li> <li>18. Classification</li> <li>19. Viruses</li> <li>20. Bacteria</li> <li>21. Protists</li> <li>22. Fungi</li> <li>23. Animal Characteristics</li> <li>24. Invertebrates</li> <li>25. Vertebrates</li> <li>26. Plants</li> </ol>	<ol style="list-style-type: none"> <li>1. The Nature of Science</li> <li>2. Metric System</li> <li>3. Scientific Method</li> <li>4. Graphing</li> <li>5. Biochemistry</li> <li>6. Cell Structure</li> <li>7. Cell Membrane</li> <li>8. Diffusion and Osmosis</li> <li>9. Photosynthesis and Respiration</li> <li>10. Protein Synthesis</li> <li>11. DNA Replication, translation, transcript</li> <li>12. Mitosis</li> <li>13. Meiosis</li> <li>14. Genetics</li> <li>15. Ecology</li> <li>16. Biodiversity</li> <li>17. Evolution</li> <li>18. Classification</li> <li>19. Viruses</li> <li>20. Bacteria</li> <li>21. Protists</li> <li>22. Fungi</li> <li>23. Leaf Collection</li> <li>24. Animal Characteristics</li> <li>25. Invertebrates</li> <li>26. Vertebrates</li> <li>27. Animal Projects</li> <li>28. Plants</li> </ol>	<ol style="list-style-type: none"> <li>1. Introduction to Biology</li> <li>2. Chemistry</li> <li>3. Water</li> <li>4. Biochemistry</li> <li>5. Cell Structure</li> <li>6. Cell Transport</li> <li>7. Metabolism</li> <li>8. Respiration</li> <li>9. Photosynthesis</li> <li>10. Cell Communication</li> <li>11. The Cell Cycle</li> <li>12. Meiosis</li> <li>13. Mendel</li> <li>14. Chromosomal Basis of Inheritance</li> <li>15. DNA Structure</li> <li>16. RNA Replication</li> <li>17. Protein Synthesis</li> <li>18. Genetic Code</li> <li>19. Control of the Gene Expression</li> <li>20. Genetics of Viruses &amp; Bacteria</li> <li>21. Recombinant DNA Technology</li> <li>22. Mechanisms of Evolution</li> <li>23. The Evolutionary History of Biologic Diversi</li> <li>24. Plant Diversity</li> <li>25. Fungi</li> <li>26. Plant Structure &amp; Growth</li> <li>27. Transport</li> <li>28. Nutrition</li> <li>29. Reproduction &amp; Control Systems</li> <li>30. Animal Evolution</li> <li>31. Invertebrates</li> <li>32. Vertebrate Evolution &amp; Diversity</li> <li>33. Animal Structure &amp; Function</li> <li>34. Nutrition, Circulation &amp; Gas Exchange</li> <li>35. Chemical Signals</li> <li>36. Nervous Systems</li> <li>37. Sensory &amp; Motor Mechanisms</li> <li>38. Reproductive Systems &amp; Development</li> <li>39. Ecology</li> </ol>

