8th Grade Science Outline
Transition to NGSS
2019-2020

Below is a list of topics scheduled to be taught this year. The Next Generation Science Standards are the foundation, and Oregon has selected standards to be taught at each year of middle school. More general information about the standards can be found at http://www.nextgenscience.org/

Information specific to Oregon and NGSS implementation can be found at: https://www.oregon.gov/ode/educator-resources/standards/science/Pages/Science-Standards.aspx

I. **Introduction**
   a. Scientific Practices
      i. Method
      ii. Models
      iii. Hypotheses, theories, and laws
      iv. Safety/Class Norms
   b. Crosscutting concepts
      i. Patterns, similarity, and diversity; Cause and effect; Scale, proportion and quantity; Systems and system models; Energy and matter; Structure and function; Stability and change
   c. Measurement
      i. Qualitative vs. Quantitative Observations
      ii. SI Units/Practical Applications with equipment/Density/Buoyancy

II. **Physical Science**
   a. Force and Motion
      i. Measuring Motion/Free body diagrams
      ii. Forces
      iii. Newton's Laws
   b. Energy
      i. Kinetic Energy and Mass
      ii. Potential Energy and arrangement of objects
   c. Waves and Electromagnetic Radiation
      i. Waves and energy
      ii. Transmission, Reflection, Absorption
      iii. Digital vs. analog

III. **Earth and Space**
   a. Space Systems
      i. Moon phases, seasons, and eclipses
      ii. Scale of the universe
   b. History of Earth
      i. Geologic time scale

ii. History of living things

c. Human Impacts
    i. Human population and Resources

IV. Life Science

a. Growth, Development, and Reproduction of Organisms
    i. Mutations
    ii. Selective breeding
b. Natural Selection and Adaptations
    i. Comparative anatomy
    ii. Embryology
    iii. Theory of Natural Selection