**MAREA S.T.E.M. Concepts**

Math

Circumference, Diameter, Time conversion, Sine, Cosine, Pythagorean theorem, Tangent, Code conversion, Lat/long, Great circle, Spherical geometry, Degrees, Angles, Triangles, Quadratic equations

Physical Science- Space Related

Doppler shift, AOS/LOS, Orbital inclination, Orbit period, GPS, Navigation, Linear motion, Angular motion, Azimuth, Elevation, Power conversion, Power generation, Speed of light, Basic robotics, Space communications, Remote sensing, Power management, Remote control, Interplanetary exploration, Kepler’s Laws, Newton’s Laws, Gravity

Physical Science- Science of Radio

Path loss, Wave propagation, Line of sight, Packet radio, Modulation, Demodulation, TNC, APRS, Frequency bands, Effective radiated power, Velocity factor, Wavelength, Phase angle, Polarization, Circular polarization, Linear polarization, Phasing lines, Impedance, Impedance transformation

Physical Science- Electronics

PWM, Comparators, Servo operation, Voltage, Current, Resistance, Ohms Law

Computer Programming

Number systems, Decimal, ASCII, Computer programming, Subroutines, Memory limitations, Memory types RAM and ROM, Timers, Micro controller programming

Group Problem Solving, Human Communications

Group problem solving, Group leadership, Public speaking