

## **EXECUTIVE SUMMARY: SENIOR SCIENCE SOCIETY MODULES**

(for module details, see <https://seniorsciencesociety.org/> under tab “Resources”)

- 1. Things that Fly:** lectures and demonstrations of aerodynamics focused on flight, measurements, or quadcopters, depending on presenter; grade K – 12.
- 2. Mechanical Advantage:** ability of levers, pulleys and hand cranks to make things easy to move, and mechanical advantage; grade 3 – 8.
- 3. States of Matter:** extends the understanding of gasses, liquids and solids using demonstrations for visualization; grade K – 8.
- 4. Cataclips:** simplified statistics and in-class experiments to illustrate the difference between accuracy and precision; grade 4 – 8.
- 5. Fun with Triangles:** triangles are a vital element of mathematics for S & Es and are introduced and demonstrated using simple experiments; grade 4 – 8.
- 6. Sweet Sound of Music:** demonstrations to show how sound is made and transmitted as pleasing to the senses; grade 3 – 8.
- 7. Click and Dunk Tabletop:** short demonstrations of elastic and inelastic collisions and buoyancy, introducing prediction in science; grade 2 – 8.
- 8. Bicycle Wheel Gyroscope Tabletop:** short intro to principles of angular momentum and the gyroscopic effect; grades 3 - 8 for demo, 8 - 12 for theory.
- 9. What can an Atom Do?:** basic structure of the atom and how they behave, including simple demonstrations to illustrate behaviors; grade 5 – 8.
- 10. Laws of Science:** introduction to Newton’s Laws and the Laws of thermodynamics using easily-digestible experiments; grade 5 – 8.
- 11. When You’re Hot, You’re Hot:** definition and relationship of temperature, thermal energy, and heat including the transfer of heat; grade 3 – 8.
- 12. All Aboard for Digital Signals:** digital operation of a simple model railroad. including the transmission and reception of digital signals; grade 3 – 12.
- 13. Internet Operation and Net Neutrality:** concept described by the operation of a model railroad using features to simulate routers, et al; grade 3 – 12.

*Revised: 1 Sept 2021*