Flight and Space

(Created May 2020)

ELOs

Lesson 1:

1. Students can discover the science of flight and use aerodynamic concepts to explain how aircraft fly.
2. Students can investigate the effect of different airfoils on flight, use maps for navigation, and explore flight crews scheduling criteria
3. Students can design and build a prototype of an aircraft and create a flight plan based on an assigned challenge scenario that relates to crew scheduling, maintenance problems, or route changes.

Lesson 2:

4. Students can investigate how scientists and engineers play a vital role in space travel, space discovery, and living in space.
5. Students can explore launch, orbit, landing, maintaining health in space, and maintaining a stable living environment for astronauts.
6. Students can follow the engineering process to design, build, and test an improved prototype of a system of their choosing.

Lesson 3:

7. Students can design and model different aspects required to complete a mission to Mars.
8. Students can collaborate to complete the problems and present their findings.
9. Students can complete a mission that includes planning the astronaut crew, rocket specifications, crew daily activity schedules, Mars landing site, and Mars landing vehicle.

Essential Questions

1. What skills prepare you for diverse career opportunities?
2. How can failure produce positive outcomes?
3. What does it take to effectively develop a solution to a problem or need?
4. What does effective teamwork look like?
5. Why are teams of people more successful than an individual when solving problems?
6. How do you express yourself and your creativity through engineering?
7. How do past technological achievements lead to new advancements?
8. How do the laws of motion affect flight in Earth's atmosphere and space?
9. What is the purpose of modeling?
10. What is the purpose of performing investigations?
11. What do humans need to survive?