

Lesson Two: Flight Gears™

Content Objective: Students will use the Gear! Gears! Gears! Flight Gears to create a flying machine

Language Objective: Students will summarize their experience with testing their airplane using discussion and/or writing.

STEM Career: Airplane Captain

Vocabulary:

- Transportation: the action of moving someone or something
- Gears: tooth wheels that work together

Next Generation State Standard(s):

K-ESS2-1: Use observations to describe patterns in the natural world in order to answer scientific questions.

K-ESS2-2: Construct an argument with evidence to support a claim.

ISTE Standard(s):

1.d. Understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

3.d. Build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

4.c. Develop, test and refine prototypes as part of a cyclical design process.

Materials:

- Gears! Gears! Gears!® Flight Gears™ Set

Preparation:

- Have the transportation song ready on the computer

Lesson:

1. Begin discussion by asking students to brainstorm the different types of transportation (focus will be on airplanes).
2. You can share the song/video (<https://www.youtube.com/watch?v=cSw50Jw0H34>) to reinforce the different modes of transportation.
3. Share with students that they will have an opportunity to build a big airplane like the one shown in the video.
4. Show the Gears! Gears! Gears!® Flight Gears™ set pieces with students. How do students think they will use the gears to piece the airplane together?
5. Allow students time to put together their airplanes.
6. Students can test the movement of their planes on the ground. You can ask students what happens when they push their airplane? How far does it go? Could they make it go further?
7. Students then share their creations with the rest of the class.

Questions to Guide Students:

- What happens when you push your airplane with different strengths?
- How will you use the gear pieces to piece the airplane together?

Check for Understanding:

- Check student learning through the airplane they build and questioning students as they test their airplane. Student learning can also be checked through class discussion when the project is complete.

Challenge: For older students, you can use the Gears! Gears! Gears!® Motorized On the Move Building Set to have them motorize their airplane.