iFLY Education Program
Teacher Guide
Grades 2-5

Program focus

The Elementary School Education Program at iFLY uses iFLY's unique vertical wind tunnel facility to make STEM exciting, relevant, and accessible to students. Our curriculum has been designed by STEM educators and scientists to support STEM learning in your classroom. Every iFLY field trip includes:

- Interactive STEM presentation, delivered by iFLY STEM Educator
- Physics demonstration in the wind tunnel
- Classroom experiment to investigate the effects of parachute parameters on flight performance
- Flying instruction & safety training
- Flying time, with one-on-one supervision from a highly-trained and certified instructor
- Pre and post-field trip activities to conduct in your classroom
- iFLY cinch sack filled with swag for each student to take home

Learning objectives

- Increasing awareness of exciting STEM careers
- Learning how STEM is used in the real-world
- Understanding the differences between solids and fluids
- Analyzing the effects of different forces on an object
- Planning investigations and defining variables in an experiment
- Measuring and recording data
- Interpreting results
- Understanding variability, uncertainty, and error in experimental results

Program synopsis

Lecture and Demonstration
The program begins with a lecture and discussion with iFLY STEM Educators to introduce STEM concepts related to the wind tunnel. Students will discuss the differences between solids and fluids. They will identify air as a fluid and learn that air can exert a force on objects. The STEM Educator will discuss the different forces at work in the wind tunnel, and how changing the shape or "frontal area" of an object will affect its speed in the wind tunnel. Educators will also introduce engineering careers and how engineers use wind tunnels to test their designs.

The wind tunnel demonstration segment uses various objects such as inflatable balls to show how the "terminal velocity" (the air velocity required to "fly" the object) depends on an object's size, shape, and weight.

Classroom Experiment
Students break into 2's and 3's to experiment with small parachutes. They write an "Experiment Plan", where they decide which variables (i.e. parachute size, shape, string length, weight, etc.) they will alter, and which variables they will hold constant. They carry out their experiment, record their results, and share with the entire group. Together, the class builds a common understanding of how parachutes work, incorporating the concepts of force and terminal velocity learned during the lecture. Students can take home their Experiment

Plans and parachutes. Teachers will take home a document that covers the “Science of Parachutes” to facilitate further classroom discussion.

Flight Experience
All students are given flight instruction by a certified flight instructor, including an individual flight experience in the iFLY tunnel.

Grade level appropriateness

Our curriculum has been specifically designed to support the following standards:

Common Core Mathematics:
2.MD.A.1; 2.MD.D.9; 3.MD.B.4; 3.MD.C.5; 4.MD.A.3

NGSS: K-PS2-1; K-PS2-2; 3-PS2-1; 3-PS2-2; 4-PS3-1; 5-PS2-1; 3-5.ETS1-1; 3-5.ETS1-3

If your state does not follow the national standards, please ask a member of our sales staff for a copy of your state specific standard alignment.

Making the most of your field trip

1. Deliver the “Pre Field Trip” slides found on our website (iflyworld.com) to your students. This presentation will show students what to expect when they arrive at the wind tunnel. It will also introduce some of the vocabulary and STEM concepts we will cover in the field trip. There is even a “script” that you can read word-for-word to your students. No preparation necessary!
2. If you have questions before, during, or after your field trip, please do not hesitate to contact iFLY staff. We are happy to answer any questions that will make your students’ experience better!
3. Arrive on time. Students’ flight times are prescheduled and cannot be rearranged. Arriving promptly will ensure that your students do not miss any portions of their education experience.
4. During the classroom activity, the STEM Educator may ask for your assistance to help students with certain portions of their investigation. Please encourage parents and other field trip chaperones to jump in and lend a hand!
5. Help us improve and strengthen our program by completing the Teacher Survey. We value your feedback!
6. Please visit our website, iflyworld.com, for post field trip activities. Having a follow-up discussion or activity with your students after the field trip will help support the concepts they learned during their visit.