



Waterloo Wellington FLIGHT CENTRE

Grade 6

THEORY of FLIGHT

Field Trip Overview

Hello and welcome!

The Waterloo Wellington Flight Centre is pleased to offer Grade 6 students the opportunity to explore the science of flight through our interactive "Theory of Flight" field trip. We were established in 1932 as a non-profit organization. Originally known as the K-W Flying Club, we have been part of the Waterloo Region for over 90 years.

We have grown to be one of the top flight schools in Canada, offering Post Secondary Professional Flight Programs with the University of Waterloo (a 4 year degree program, ideal for students wishing to pursue a degree in Science or Geography),

The Waterloo Wellington Flight Centre is also registered as an Ontario Career College with the Ministry of Training, Colleges and Universities.

Our hope is to promote the world of aviation to enthusiastic young students in collaboration with their in-school curriculum.

Regrettably our classrooms are not wheelchair accessible. We are pleased to accommodate.

The following information outlines the details of the field trip.

Field Trip Outline

Upon arrival, students will participate in the following:

1. In-class, interactive theory lesson, with visual aids, on the fundamentals of flight (approx.: 40-minute session) – aimed at fulfilling the Ontario Curriculum objectives for flight.
2. The instructor will cover ways in which the properties of air can be applied to the principles of flight and flying devices. (John Picard, an Ontario certified teacher and certified flight instructor, has developed the field trip curriculum/program based on Ministry approved curriculum). The material will be presented by one of our certified flight instructors.
3. The students will discuss & investigate ways in which flying devices make use of the properties of air.

After this, the students will break off into two groups and will take turns:

- 1) Walk around of aircraft- 152 Cessna and/or 172 Cessna on the apron or in the hangar (approx: ½ hour session) –students will have an opportunity to sit in a plane and get a feel for the controls. An instructor will do a walk-around with them, pointing out and explaining the function and importance of the instruments and various components of the plane.

- 2) Practical application: (Example) Students will have the opportunity to use a desktop flight simulator as guided by instructor

BASIC COST OF FIELD TRIP

- \$10.00 per student (Minimum 15 Maximum 35) +HST
- Payment is due on the morning of the tour (cash, cheque, or visa)

Each teacher will receive:

1. A teacher's package that summarizes what is covered. This also includes a marking rubric (the levels outlined may also be used as report card comments).
2. A student's package that reviews the basic theories of flight.

We suggest you make time provision for a two-hour field trip, to ensure there is enough time to cover all components listed above.

BOOKING YOUR TOUR DATE ONLINE → new this school year

To book your tour we ask that you visit this link to secure your date <https://wwfc.ca/grade-6-tours-field-trips/>. Please ***use your board or Private School email address***. You will receive a confirmation details email from Tracey Taylor.

Tours occur every Tuesday and Thursday morning beginning September 16th 2025 - June 18th 2026 at 10am-12pm (first come first served)

Contact:

TRACEY TAYLOR

Program Coordinator

Waterloo Wellington Flight Centre

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Curriculum:

Grade 6: Understanding Structures and Mechanisms

OVERVIEW

The use of flight technologies has substantial effects on both society and the environment. In order to understand the principles of flight, students must first learn about the properties of air that make flight possible. Through investigations, observations, and experiments, students will discover that flight occurs when the characteristics of structures take advantage of certain

Properties of air (for example, air takes up space, has mass, expands, and can exert a force when compressed). They will then apply their newly acquired knowledge to design and test a flying device.

It is important that students be able to identify practices that ensure their personal safety and the safety of others and demonstrate an understanding of these practices. As students explore flying things, it is important that they understand why projectiles of any kind should always be aimed away from spectators, and why buildings, trees, and overhead wires present hazards to anyone flying kites or airplanes.

OVERALL EXPECTATIONS (As applicable to the Flight Centre)

By the end of Grade 6, students will:

1. Investigate ways in which flying devices make use of properties of air;
2. Explain ways in which properties of air can be applied to the principles of flight and flying devices.

SPECIFIC EXPECTATIONS

2.5 Use appropriate science and technology vocabulary, including **aerodynamics**, **compress**, **flight**, **glide**, **propel**, **drag**, **thrust**, and **lift**, in oral and written communication.

3.3 Identify and describe the four forces of flight – lift, weight, drag, and thrust

3.4 Describe, in qualitative terms, the relationships between the forces of lift, weight, thrust, and drag that are required for flight (***e.g., lift must be greater than weight for a plane to take off; thrust must be greater than drag for a plane to take off; lift must be less than weight for a plane to land; thrust must be less than drag for a plane to land***)

3.5 Describe ways in which flying devices use unbalanced forces to control their flight (***e.g., a plane can be steered up or down by tilting the elevators on the tail; when a bird flaps its wings, the wings develop lift as well as forward and upward force, thus causing it to take off***)

3.6 Describe ways in which the four forces of flight can be altered (*e.g., increasing the angle of attack increases the lift; lightweight materials help to keep the overall mass of the plane down, so that it can fly with smaller lift force; jet engines can vary the amount of thrust, which enables the plane to move forward; using the flaps on airplane wings changes the amount of drag, which reduces the speed of the plane.*)

Tour Safety and Student Expectations

Thank you for choosing Waterloo Wellington Flight Centre for your Grade 6 tour! Regrettably our classrooms are not wheelchair accessible. (accommodation can be made by inquiring)

As we are a working facility and are located at the Region of Waterloo International Airport, we have safety and behaviour standards that we ask all teachers to review before the tour day.

- When arriving at the facility please have all students stay with the tour organizer and teacher at all times, unless instructed otherwise. WWFC is an active school and flying club, which means there will be planes flying into and away from the centre at any given time.
- When in the classroom portion of the tour, please ensure the students respect the facility by using garbage vessels for waste and respecting the classroom area tables & chairs. When not in use for tours, the facility is a learning environment for university and college students and members.
- When the tour continues to the tarmac area or inside the hangar, please ask students to listen closely to the instructor giving the tour and respect for the aircraft which they are invited to look at and tour. These aircraft are used on a regular basis by our instructors, students and members and are not to be treated in a careless manner.
- We request that each tour (minimum 15 students max 35 students) has a minimum of four (4) participating parent or teacher chaperones – these chaperones will be responsible for the behaviour of the students and are required to take an active role in the tour with the class. (please share this document with them ahead of the tour) – Please note: If a student is not adhering to the above policies and procedures, WWFC staff will ask the student to return to the classroom and be under the direct care of a chaperone or teacher.

WWFC wants all students to enjoy their time at the flight centre, and by following these guidelines, we are sure students will have fun learning about aviation!



If you have any questions or concerns, please feel free to contact Tracey directly ahead of your booked tour date.

Thank you for your cooperation.

Tracey Taylor

Program Coordinator

Waterloo Wellington Flight Centre