

## Internal Combustion Engine Lab

This lab is designed to provide students with hands-on experience with combustion engines. By completing this lab students will be familiar with how an internal combustion engine works, how to put one together, and what each part is responsible for. For this lab, two students will share one engine kit and work together to construct an operating model of an internal combustion engine. For three days of the program the lab time will be designated to constructing the engine model. Over the course of these three days nine hours will be provided for assembly of the engine. Although the engine may prove to be a bit of a challenge, it should be completed within the designated time.

1. First, locate the instruction manual and all parts. Look over the parts list in the instruction manual and locate each part in your kit. Be sure that your kit is not missing any parts. If your kit is missing parts please notify an instructor which part(s) is (are) missing so that we can provide you with it (them). Also, the assembly should not require any tools that are not provided in the kit. However, should you feel that you need additional tools please request them from an instructor.
2. Follow the instructions provided to assemble your model engine. If at any point these instructions become too vague, or you have any questions, do not hesitate to ask an instructor. There is also a YouTube video that demonstrates how to assemble this engine which may be of great help to you, the link is [http://www.youtube.com/watch?v=zA\\_19bHxEYg](http://www.youtube.com/watch?v=zA_19bHxEYg).
3. Once you have finished assembling the engine model, obtain a set of batteries from an instructor and test your completed engine to be sure that it is working properly. If it is not running properly try to determine what is causing the problem and fix it.
4. If your engine model is completed and working properly watch it as it runs and pay special attention to (you may want to make note of these):
  - a. The location of the intake valves
  - b. The location of the exhaust valves
  - c. The way that the cams and camshaft operate relative to intake, scavenging of exhaust, and the motion of the pistons
  - d. The way that the pistons move (individually and together)
  - e. When the lights ignite
5. What type of engine have you built a model of? Why have you made this conclusion? (Be as specific as possible)