

Propeller Propulsion 2011 A2 (Elementary)

Revised 11/9/10

The competition:

1. Each team will build a rubber-band-powered airplane ahead of time. (We are using the Delta Dart kit again this year.) As specified in the manual, power source is a single rubber band and a single propeller.
2. The plane, with team's school name and color written on it, should be brought to impound by a student. It might be helpful to have a box to transport your school's planes. Write the school name and time of competition on the outside of the box if you have one. (One plane per team.) Repair supplies such as paper tabs, glue stick, clay, replacement rubber band, & replacement propeller may be included in the impound box if desired.
3. During the competition, there will be a designated area for spectators. Only the team members are allowed in the flight zone during the flights.
4. Two launch areas will be marked, one in the middle of the flight zone and one near the edge. Teams may choose their launch area based on how they expect their plane to fly. Each area is approximately 1 meter in diameter. The student must have both feet inside the area during the launch.
5. The flight will be timed by two timers, and the average time will be taken. The time begins when the plane leaves the student's hand, and ends when the plane hits the floor OR comes to rest on an obstruction. If the plane hits a wall, the timer will continue until the plane hits the floor. The timer stops when the plane contacts the floor, and bouncing/sliding along the floor is not included.
6. Each plane/team is allowed two launches, with up to two minutes in between launches. Launches may be made by the same student or different students, both from the same launch area or one from each.
7. Winner is determined by longest single flight time, with ties broken by the second flight time.

The practices:

1. The airplane is built using the pieces in the kit, glue stick, white glue or wood glue, and a straight pin. An elastic is included in the kit but may be replaced with a different type of rubber band if desired.
2. Paper tabs or small piece of clay may be added to modify the flight as specified in the instructions. However, these tabs provide only slight adjustment and will not "fix" a plane that is built poorly. For this reason, it is suggested that each team build more than one plane and see which flies the best. The tabs and clay may not be used in other ways that are not specified in the instructions.
3. Additional straight pins are useful in holding pieces in place during repairs, but only the single straight pin is allowed in the plane during competition.

4. Steps in building that are deemed too dangerous for the student may be carried out by an adult, but the student should be fully present and focused on these steps as well. For example, any trimming of the propeller, IF attempted, SHOULD be done by an adult, but the student can test the propeller to determine which side needs to be trimmed. Also, the student can measure and mark where the balsa wood needs to be cut, and an adult can make the actual cut. Use your better judgment to maximize learning and fairness while avoiding injury.