Name_____ Period _____ Date _____

Dronopter

STEM Sims

Lesson 1: The Optimal Dronopter Frame

Building the ideal dronopter requires choosing the best frame to support the motors. While some frames are lightweight, these frames might not be able to hold together when motors are attached. Can you find out which frame or frames support flight?

Doing the Science

1. Start the Dronopter Simulation by clicking on the "Sim" tab.
2. To design your dronopter, click and drag one of the frames to the center of the table. Record in Table 1 the frame material you selected.
3. Select and drag the top left motor labeled 80/8/CW to a corner of the frame.
4. Repeat step 3 until all four corners of the frame have a motor attached.
5. Click the "Test" button.
6. On the next screen, drag the red circular joystick handle to control the thrust. Note and record in Table 1 whether the dronopter lifted off the ground or not.
7. Select the "Build" button to return to the first screen.
8. Repeat steps 2–7 until all four frame materials have been tested.

Table 1.

Frame Material Tested	Flight Results

Do You Understand?

1. Which frame material(s) worked best in your test? Provide a reason for why this frame material supported flight.

2. Which frame material(s) did not work at all? Provide a reason for why this frame material did not support flight.