**PFW DroneBlocks Camp Curriculum**

**Day 1 (Introduction to DroneBlocks):**

* Check-In and ice breaker (30 min) - Tommy
* Introduction to Drones and how they are used in the world today (15 min presentation) - Yashi
* DroneBlocks Getting Started Guide - Yashi
  + Introduction and what to expect (2 min)
  + Welcome to Tello (1 min)
* Connecting to Tello: - Yashi
  + Welcome (2 min)
  + Connecting to Tello (5 mins)
  + Demonstrate Block Coding to Students on the DroneBlock app (10 min)
  + Practice using the navigation blocks with the drones (20 min)
* Break (15 min)
* Introduction to Tello Programming - Yashi
  + Introduce variables (5 min), Variable Activity (20 min)
  + Introduce flips (5 min), Flip Activity (15 min)
  + Introduce loops (5 min), Loops Activity (30 min)
  + Practice DroneBlocks programming (20 min)
* Introduce the Simulator - Riley
  + Introduce students to the website (5 min)
    - PASSWORD FOR JULY: 7596
  + Show the introduction videos (10 min)
* Practice Simulator (30 mins) - Riley

**Day 2 (Introduction to Python Programming):**

* Check in / Icebreaker (15 min) - Tommy
* Simulator 2.0 - Welcome to Mars - Yashi
  + Show the sample and challenge video and ask them to do the challenge (6 min)
  + Challenge (30 min)
* Simulator 2.0 - Egyptian Expedition - Yashi
  + Show the sample and challenge video and ask them to do the challenge (6 min)
  + Challenge (20 min)
* Brief Explanation of Visual Studio Code (5 min) - Yashi
* Tello Drone Programming with Python - Yashi
  + Demonstrate Python coding using VS Code(15 min)
  + Go through the Box Mission Together using Python (15 min)
* Break (15 min)
* Activities with Python programming - Riley
  + Introduce variables (5 min), Variable Activity (20 min)
  + Introduce flips (5 min), Flips Activity (15 min)
  + Introduce loops (5 min), Loops Activity (30 min)
* Introduce flying in a curved path - Riley
  + Create different shapes with the drones (using curves and straight lines)
    - Start in the simulator so you can see the flight path (25 min)
    - Create the shapes using the drones (15 min)

## **Day 3 (Introduction Mission Pads and Display LEDs):**

* Check-In / Icebreaker (15 min) - Tommy
* Introduce the 8x8 display and LED - Riley
  + Show students the 8x8 display and how to safely attach to drone (5 min)
  + Introduction to Tello Talent Programming with DroneBlocks
    - Brief explanation of the 8x8 display (10 min)
    - Work through the Animation lesson (20 min)
    - Work through some of the challenges in Game On! (45 min)
    - Change the LED color based on the drone’s altitude (30 min)
* Intro to Mission Pads - Yashi
  + Introduce the mission pads (15 min)
  + Set up a course with mission pads
  + Practice using mission pads to trigger specific events (30 min)
* Break (15 min)
* Healthcare in the Himalayas - Riley
  + Show the video to explain a potential use of drones (5 min)
  + Use scattered Misson Pads to act as remote villages and the hospital (30 min)
* Adjust teams if needed

## **Day 4 (Combined Activities):**

* Check-In / Icebreaker (15 min) - Tommy
* Activities combining (Loops, Variables, Flips, Logics) - Yashi
  + Activity 4 – Logic Activity (30 min)
  + Activity 5 – Racing Activity (40 min)
  + Activity 6 – Ultimate Drone Activity (40 min)
* Break (15 min)
* Camera Control - Riley
  + Introduce the DroneBlocks camera (10 min)
  + Practice using the camera blocks to take a picture or video
* Programming Robomaster TT (Tello Talent) with Python -Yashi
  + Using Mission Pads to travel in a square (30 min)
  + Jumping between Mission Pads (40 min)
* Introduction to “Drone Olympics” - Yashi & Riley
  + Introduce the 6 challenges (20 min)
  + Brainstorming time – Write pseudocode (30 min)

**Day 5 (Challenges and Demonstrations):**

* Check-In / Icebreaker (15 min) - Tommy
* Spend time on “Drone Olympics” challenges (8:30 – 10:30)
* Parent/Viewer Introduction to the “Drone Olympics” (15 mins)
* Campers demonstrate challenge solutions (10:45 – 11:45)