

Coding with Parrot Mini Drones

Terminal Objective 2.5: Created an obstacle course

Performance Objective 2.5: Using an iPad or Android tablet with the free flight mini app, create an obstacle courses uses creativity to challenge mini drone flight.

Enabling Objectives:

1. Brainstorm course ideas

Materials and Supplies:

- Ipad with iOS 8.0 or later or Android tablet with 4.0 or later
- Download and install free flight mini app on tablet (found in app store)
- Safety glasses for all participants
- Parrot Mini Drone: Cargo or Mamba
- USB charging device
- Flight Challenge 2.5 (for reference)
- Items for students to use for creating obstacle course
- *Performance Assessment 2.5: Remote flight challenge* (copy for each student)
- *Understanding Check 2.4: Remote flight* (copy for each student)

Learning Activities:

1. Obstacle course design and build
2. Practice flying through obstacle course

Formative Assessment:

1. Build and test obstacle course using mini drone

Summative Assessment:

1. Evaluate students using *Performance Assessment 2.5: Remote flight challenge(optional)*

Supplemental teacher resources:

- Flight controles for free flight 3 mini app
<https://community.parrot.com/t5/Mambo-Knowledge-Base/Using-the-Parrot-Mambo-wit-h-a-smartphone/ta-p/145927>
- Optional flypad accesory
<https://community.parrot.com/t5/Mambo-Knowledge-Base/Parrot-Flypad/ta-p/145932>

Remote flight challenge 2.5 (optional)

In this challenge, students will design and build their own obstacle course to fly through. The performance rubric for this activity adds the criteria of having three or more elements in the course. To make this more interactive as a class, have students set the criteria for the obstacle course. Encourage students to design course on paper with an explanation of what they are wanting to do before they build. Students will love the flexibility with this challenge and it's fun to see the creativity of the students.

Steps:

1. Group students (2-3 works well)
2. Let students design obstacle course on paper
3. Establish designated fly and safe zones in an open area
4. Take turns with groups setting up their course
5. Have operating student place mini drone in the fly zone
6. Move to the safe zone
7. Have students practice the task of maneuvering through the course
8. Evaluate students using *Performance Assessment 2.5: Remote flight challenge(optional)*

**Performance Assessment 2.5:
Remote flight challenge(optional)**

Name: _____ Date _____

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Assessment

Criteria	Much below Expectations 1 Point	Below Expectations 2 points	Meets expectations 3 points	Exceeds Expectations 4 points
Course elements	1 element	2 elements	3 elements	4+ elements
Course Difficulty	Requires little skill to fly through eg, straight lines	Requires left and right turns	Requires left and right turns and different heights	Requires great piloting skills eg. tight spaces, or quick maneuvers
Follows flight path		Breaks path	Generally follows path	Maintains path
Accurate Landing		Down the street (Misses pad)	In the yard (Touching pad)	On the porch (Middle of pad)
Safety	Does not follow safety practices		Follows safety practices	
Total				

Assessed by: _____ Date: _____