

## Coding with Parrot Mini Drones

**Terminal Objective 3.1:** Program the minidrone to fly a simple pattern

**Performance Objective 3.1:** Using Tynker app, program the Parrot mini drone to fly a simple pattern within boundaries.

### Enabling Objectives:

1. Define programing
2. Identify programing elements (blocks)
3. Sketch program design (pseudocode)
4. Program flight pattern using Tynker app
5. Test program to perform flight task

### Materials and Supplies:

- iPad with iOS 8.0 or later or Android tablet with 4.0 or later
- Download and install Tynker app on tablet (found in app store)
- Safety glasses for all participants
- Parrot mini drone: Cargo or Mamba
- USB charging device
- *Simple Pattern 3.1* (for reference)
- *Performance Assessment 3.1: Simple pattern* (one for each student)
- Roll of masking tape

### Learning Activities:

1. Video ROAV mini 3.1 v1
2. Create flight plan using pseudocode

### Formative Assessment:

1. Practice programing using blocks in Tynker app
2. Safely perform autonomous flight of simple pattern.

### Summative Assessment:

1. Evaluate students using *Performance Assessment 3.1: Simple Pattern*

### Supplemental teacher resources:

- Cool Coding with Parrot MAMBO MiniDrone and Tynker  
<https://www.youtube.com/watch?v=BiIGaLoiQa0&t=3s>
- Hour of Code with Tynker <https://www.youtube.com/watch?v=CiC-1W6DaXI>

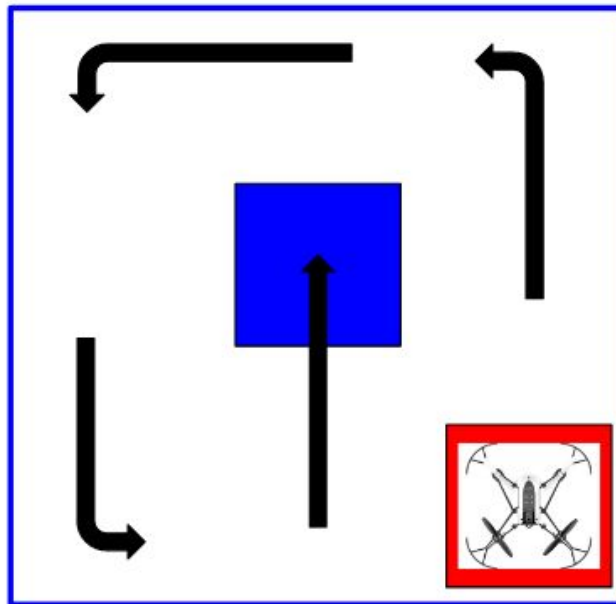
## Simple Pattern 3.1

To set up this challenge you will need a some tape to mark out squares and boundaries. You may want to use a rug and have students fly above for reference. For this example, the pattern is provided but alternative patterns can be use to increase challenge or practice. Students will create a program to fly the pattern within the taped boundaries.

### Steps:

1. Establish designated fly and safe zones in an open area
2. In the fly zone, mark out boundaries and starting square (red) on the floor using tape
3. Mark landing square (blue) on the floor (figure 1)
4. Set mini drone on red square
5. Have students create program to follow pattern at initial take off height (3 feet)
6. Have operating student place mini drone in the fly zone
7. Move to the safe zone
8. Have student run program to perform simple pattern
9. Evaluate student's performance using *Performance Assessment 3.1: Simple pattern*

Figure 1



## Performance Assessment 3.1: Simple Pattern

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Terminal Objective 3.1:** Program the mini drone to fly a simple pattern

**Performance Objective 3.1:** Using Tynker app, program the Parrot mini drone to fly a simple pattern within boundaries.

### Assessment

Skill Check	Pass	Retry
Followed safety practices	<input type="radio"/>	<input type="radio"/>
Demonstrated proper power up and power down procedures	<input type="radio"/>	<input type="radio"/>
Flew mini drone following simple pattern	<input type="radio"/>	<input type="radio"/>
Flew mini drone within boundaries	<input type="radio"/>	<input type="radio"/>

**Note:** To pass this objective, all skill check items must receive a pass.

Assessed by: \_\_\_\_\_ Date: \_\_\_\_\_