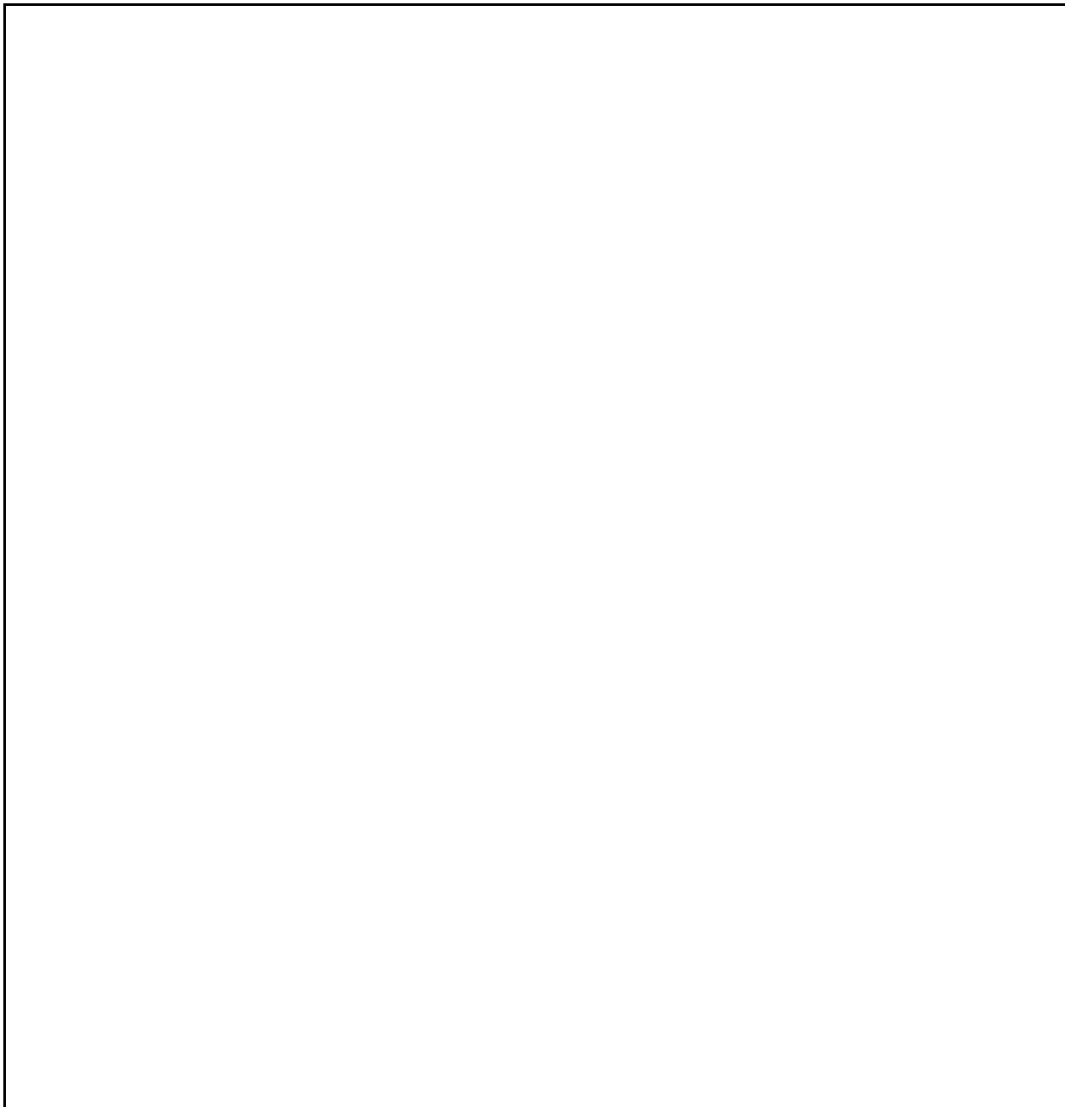


## Drone Mission

Imagine that you are a rancher, and you raise sheep. Your 25 sheep are grazing on a large, hilly area surrounded by fences. The area is so large that it takes a lot of time to monitor the entire area, even with horses or all-terrain vehicles. You have just purchased a drone to help monitor the sheep. You will need to program a flight plan for the drone and take aerial photographs and videos of the grazing area. Examine the images captured by the drone's camera to identify problems, and determine how to resolve the problems.

1. Using the drone video footage captured by your teacher, record the number of sheep and map out the problem areas in the rectangle below. Assign a number 1-4 to each problem area on the map.

Number of sheep \_\_\_\_\_



2. With your group, take turns manually flying the drone over the ranch, and take an aerial photo of each problem area. The first person will fly over and photograph problem area 1, the second person will fly over and photograph problem area 2, and so on.
3. Examine the aerial photographs to identify each problem area and determine how the problem can be solved. Record the problems and solutions on the chart below:

Problem	Solution
1.	
2.	
3.	
4.	

4. With your group, choose from the flight commands below to create a flight path that meets the following requirements:
  - The drone may begin at any location along the perimeter of the field.
  - The drone must take off and land at the same location.
  - The drone must fly over every problem area and hover for 5 seconds.

Flight Commands		
takeoff	land	fly forward <input type="checkbox"/> in
backward <input type="checkbox"/> in	fly left <input type="checkbox"/> in	fly right <input type="checkbox"/> in
fly up <input type="checkbox"/> in	fly down <input type="checkbox"/> in	yaw right <input type="checkbox"/> degrees
yaw left <input type="checkbox"/> degrees	hover <input type="checkbox"/> seconds	

## Flight Path

5. Have your group's flight path checked by your teacher and make any necessary adjustments before programming the flight path in the DroneBlocks App.
6. Under the supervision of your teacher, test the flight path by launching your mission from the DroneBlocks App. Check the boxes in step 4 for each requirement that was successfully met during the test. Make any necessary adjustments to the flight path above and retest until each box can be checked off.