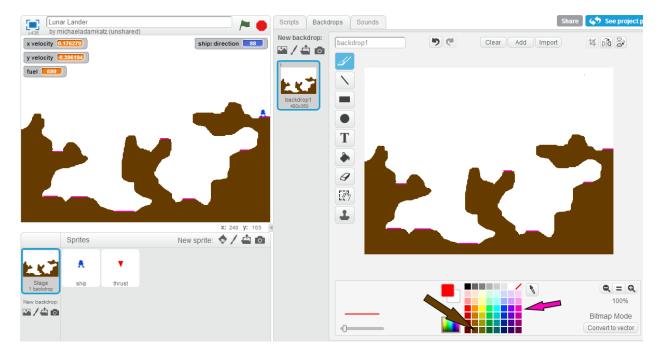
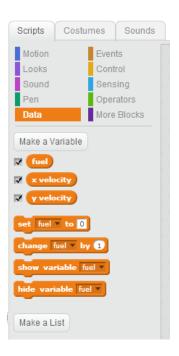
## **Lunar Lander**

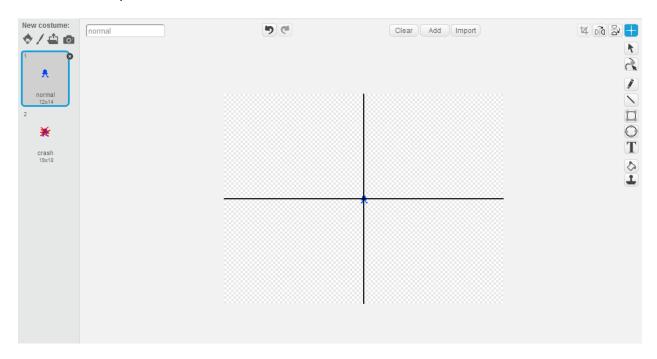
1. Draw a background in bitmap mode (normally we use vector, but for this special case we use bitmap). Use the indicated brown color for the ground, and the indicated pink color for the landing pads. Your background doesn't have to look exactly like the one in the picture.



2. Make three variables:



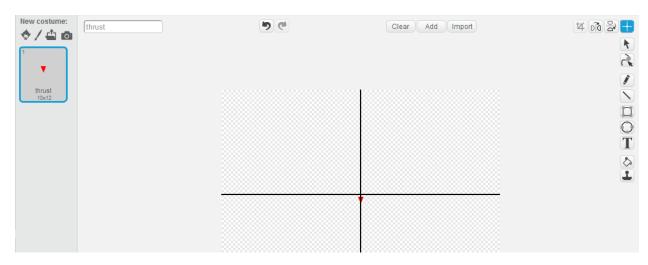
3. Ship sprite costumes (draw in vector mode and use the centering tool to make sure they are centered)



## 4. Ship sprite scripts

```
when 🖊 clicked
                                                                    define Check Land or Crash
go to x: -106 y: 165
point in direction 90
                                                                       touching color ? then
switch costume to normal
                                                                      if y velocity < -1 then
broadcast no thrust 🔻
                                                                       switch costume to crash v
set x velocity ▼ to 0
                                                                        say Landed too hard! for 2 secs
set y velocity ▼ to 0
                                                                        stop all ▼
set fuel ▼ to 1000
                                                                      if abs v of direction - 90 > 10 the
 change x by x velocity
  change y by y velocity
                                                                       switch costume to crash v
                                                                       say Tipped over! for 2 secs
  change y velocity by -0.04
 Check Keys
                                                                        stop all ▼
 Check Land or Crash
                             define Check Keys
                                                                     say Landed safely! for 2 secs
                                                                      stop all ▼
                             if key left arrow ▼ pressed? then
                             turn 🖒 2 degrees
                                                                       touching color ? then
                                                                     switch costume to crash ▼
                             if key right arrow pressed? then
                                                                      say Crash! for 2 secs
                              turn ( 2 degrees
                                                                      stop all ▼
                             if key up arrow pressed? then
                              broadcast thrust
                              change x velocity by sin of direction - 90 / 10
                              change y velocity ▼ by cos ▼ of direction - 90 / 10
                              change fuel v by -1
                              broadcast no thrust
```

## 5. Thrust sprite costume



## 6. Thrust sprite scripts

```
when I receive thrust v

go to ship v

point in direction direction v of ship v

show
```

More challenges (we will work on these next time):

- Make it so that when you run out of fuel you can no longer thrust.
- Make a refueling station in the sky that gives you more fuel when you touch it.
- Make it so you get more points for landing on the more difficult landing pads.
- Make a cooler animation when you crash.
- Make a cool animation when you land safely.
- Make multiple terrain backgrounds. Choose a background randomly when the game starts.