Kitty Wars XIV: Buzz Catyear vs The Galaxy

# Types of Sprites

The different types of sprites include:

1. Player
2. Asteroid (types small and large)
3. Power-ups (Health, gatling gun, scatter gun, rapid fire, shield)
4. Lasers (types flower, scatter, normal)
5. Explosions

# Other Elements

1. Text
2. HUD

**TYPES OF SPRITES**

PLAYER SPRITE

**Collisions:**

* Leaves boundary of screen, wraps to other side (default simple game boundary mechanic)
* Collides with LARGE asteroid, removes asteroid, splits it into random number of SMALL asteroids, takes damage, creates explosion
* Collides with SMALL asteroid, removes asteroid, takes less damage, creates explosion

**Movement:**

* Up arrow moves player forward, left/right arrows change players angle
* Shooting bullets push player back

**Reinforcement:**

* Player runs into a bunch of asteroids, dies. Player tries to avoid asteroids from now on
* Player wants to try all the power-ups, reinforced to avoid asteroids in order to obtain them and get a high score. (I really wanted to have a high score board. Would be really easy with local storage, just didn’t get around to it)

ASTEROID SPRITES (small and large)

Large Asteroid

**Collisions:**

* Collides with laser or player:
  + removes laser or hurts player
  + if hit by laser, adds to players score
    - creates text for the amount of points rewarded
  + calls SplitAsteroid()
    - to remove the large asteroid
    - create random # (0-4) small asteroids
    - reate an explosion at its location

**Movement:**

* When created, given a random angle and random speed. When it leaves a boundary, reflects dx and dy rather than wrapping to other side of screen like player.

**Reinforcement:**

* Good events: Player destroys an asteroid. Explosions, and score numbers popping up make player feel like they’re accomplishing something
* Bad events: player runs into asteroid, dies. Player wants to either improve his/her asteroid avoiding skills or stop playing entirely

Small Asteroid:

Everything is the same as large asteroid except for collision

**Collisions:**

* Rather than calling split asteroid, just remove small asteroid and hurt player or remove laser, and create an explosion

POWER-UP SPRITES

Power-ups have a 0.3% chance to spawn every time update is called with a maximum of 5 power-ups being on the screen at once. Each type of power-up is collided with it is removed, and then does something specific to which type of power-up it is…

**HEALTH:**

* Players health += 250 or += the difference from max health if less than 250 health missing

**GATLING GUN (lasts 100 updates):**

* Players shootTimer is ignored (usually has a shootTimer and shotsFired attributes to enforce triple burst fire with the default laser gun) so he shoots very fast. Also user doesn’t have to press space to shoot anymore, so he starts shooting automatically. While players weapon type is gatling gun he is constantly switching directions to shoot left/right very rapidly

**SCATTER GUN (lasts 100 updates):**

* Has same fire rate as default laser gun (shootTimer set to 10 after firing) except instead of shooting a burst of 3 lasers, it shoots 7 lasers scattered around players current shoot angle (ranging from current angle - 15 degrees to current angle + 15 degrees) also the lasers spawned when player has this weapon are “scatter” lasers which constantly spin

**RAPID FIRE (lasts 100 updates):**

* Pretty much the same as gatling gun, except you still have to press space to shoot, and you don’t constantly switch directions, just takes away shootTimer

**SHIELD (lasts 100 updates):**

* Player’s shielded is set to true, so shield is drawn around the player and the player takes no damage until shielded is set back to false. While shielded is true, everytime players shieldShootTimer reaches 0, shoot 7 lasers flowering (spinning around and returning) from player

LASER SPRITES

All lasers are given a random color. This is done by picking a random string from the colorArray [red, orange, yellow, green, blue, indigo, violet] and setting the lasers image to url = ‘laser/img/’ + color + ‘.png’

Pretty much already discussed the types of lasers when talking about the power-ups, but

**NORMAL lasers -** push player back when fired, shot in bursts of 3, players shootTimer set to 10 after 3 are fired, removed after they leave screen boundary

**SCATTER Lasers** **-** push player back a little more, shoot 7 at a time with angles ranging from current angle – 15 degrees to current angle + 15 degrees, and they spin

**FLOWER lasers -** have different image, and spin around and return to player (changing angle every update). Only fired when player has shield

Only NORMAL lasers are removed when they leave the screen, other lasers have timers associated with them for removal

EXPLOSIONS

When asteroid is destroyed, explosion is created with a random color (sets the image based on a random color from within the colorArray and each images name is a color). When explosion done with animation it is removed from the explosion list. Explosions don’t more or collide with anything

**OTHER ELEMENTS**

TEXT

**Purpose:**

* To write a specified string on the canvas, at a specified position, with a specified color and font, for a specified amount of time.

**Implementation:**

* When something needs to be written, create a new Text with specified parameters and add it to textList
* textWriter function (called every update) iterates through every text in textList and draws it, then removes it from the list once its time is up

HUD

**Purpose:**

* show the users health, score, level, and number of lives

**Implementation:**

* hudUpdater function (called every update)
* draws a healthbar with width equal to (player health / player max health) \* canvas width
* draws player icon and writes players lives attribute in top left corner
* writes players current level attribute in top right corner
* writer players score attribute in top right corner