Building Your Animation Program

Overall Template

```
Set up sprites
Set up score variables
function draw(){
      Handle Background & drawSprites
      Handle Movement
      Handle Major Events (Respawn, Collisions)
      Display Score
}
```

1. Before DrawLoop, set Up the sprites

Function	Example	Notes

A. Static Background Image	//the background
	var back = createSprite(200, 200);
	back.setAnimation("farm_land_1");
		Either A or B or a plain colour

B. Scrolling Image Background	//Space Background - 2 frames to scroll
	var frame1 = createSprite(200, 200);
	frame1.setAnimation("sci_fi_1");
	frame1.velocityX = -4;
	
	var frame2 = createSprite(600, 200);
	frame2.setAnimation("sci_fi_1");
	frame2.velocityX = -4;
		Either A or B or a plain colour
		To make a scrolling background work:
		• Each frame should have a left side that matches the right side PERFECTLY
		• It should be a square
		• It should be 400 x 400

C. Set Up Main Character	//Main character
	var hero = createSprite(100, 300);
	hero.setAnimation("alienGreen_walk_1");
		Consider:
		• Scale
		• velocityX – left to right
		• velocityY – up to down

D. Set Up Enemies, Obstacles	//Enemy
	var enemy = createSprite(410, 300);
	enemy.setAnimation("sun_1");
	enemy.scale = 0.25;
	enemy.velocityX = -4;	

E. Score Variables	//Score variable
	var score = 0;
	var screen = 1;
	var time=0;
	var speed=1;
	var level =1;	

F. EdgeSprites	createEdgeSprites();	Only needed if you intend to have a bouncing character

2. After function draw() {

Handle background and the drawSprites.

Function	Example	Notes
G. Draw Background	background("black");	If NO IMAGE in the background, neither A nor B in the above sprites section.
H. ALWAYS	drawSprites();	

I. Scroll background	//Alternate what is on the screen
	if (frame1.x<-200) {
	frame1.x=600;
	}
	if (frame2.x<-200) {
	frame2.x=600;
	}
		If you wish to have a right to left scroll, you need to move it here. Remember, pictures are 400 x 400 pixels.

3. Then, handle movement:

Function	Example	Notes

J. Jump	//hit the ground
	if (hero.y > 300) {
	hero.velocityY=0;
	hero.setAnimation("alienGreen_walk_1");
	}
	//jump
	if (keyWentDown("space")) {
	hero.velocityY = hero.velocityY -3;
	hero.setAnimation("alienGreen_jump_1");
	}
	//gravity pulls down
	if (hero.y<180) {
	hero.velocityY = 3;
	hero.setAnimation("alienGreen_duck_1");
	}
		To jump you need to code going up, coming down and running on the ground.

K. Move with Keys	//To move with arrow keys
	if (keyDown("left") || hero.x>380) {
	hero.x -= 5;
	hero.setAnimation("alienGreen_left");
	} else if (keyDown("right") || hero.x<20) {
	hero.x += 5;
	hero.setAnimation("alienGreen_right");
	} else if (keyDown("up") || hero.y>380) {
	hero.y -= 5;
	hero.setAnimation("alienGreen_up");
	} else if (keyDown("down") || hero.y<20) {
	hero.y += 5;
	hero.setAnimation("alienGreen_down");
	}
		Remove the directions that you don't want
		
		Remove the setAnimations if you don't want to change them to make your direction.

L. Bounce	//Make the enemy bounce
	enemy.bounceOff(edges);
	enemy2.bounceOff(edges);
		Requires edge sprites to work

M. Move after a certain time	time++;
	//After a certain time, move the pickupItem
	if(time >=100){
	time=0;
	pickupItem.x=randomNumber(10, 380);
	pickupItem.y=randomNumber(10, 380);
	}
		Requires the time variable to work

N. Enemy moves towards you	//Some of the time, move enemy towards hero
	var rand = randomNumber(1, 40);
	if(rand<=1){
	if (hero.x<enemy.x) {
	enemy.velocityX=-3;
	} else {
	enemy.velocityX=3;
	}
	if (hero.y<enemy.y) {
	enemy.velocityY=-3;
	} else {
	enemy.velocityY=3;
	}
	}	

O. Type b to release bomb	if(bomb.y == 380 && keyDown("b")){
	bomb.x = hero.x+20;
	bomb.y = hero.y + 35;
	bomb.velocityY = 5;
	}
		The bomb at position 380 means that it hasn't been used yet.
		Starts at the hero's position
		Moves down (velocityY is positive)

4. Handle Major Events: Respawn, Points, Game Over

P. Collision, game over	//touch a bubble and lose
	if(hero.isTouching(enemy1) ||
	hero.isTouching(enemy2)){
	enemy1.velocityY=0;
	enemy2.velocityY=0;
	hero.velocityX=0;
	textSize(40);
	text("GAME OVER", 80,200);
	}
		If touching a bad thing
		Freeze everything with velocity (set their velocity to 0)
		Display the game over method

Q. Bounce off	ball.bounceOff(hero);	

R. Collision, points	if(pickupItem.isTouching(hero)){
	pickupItem.y = 0;
	pickupItem.x = random(10,380);
	score++;
	}
	//off screen = missed it
	if(pickupItem.y>400){
	pickupItem.y=0;
	pickupItem.x = random(10,380);
	score--;
	}
		pickupItem falls down.
		
		If it touches you, then it is picked up
		
		If off the screen, it was missed and you lose a point.
		
		This code also respawns the pickupItem.

S. Respawn if reached the edge	//respawn the enemies
	if(enemy2.y>500){
	score++;
	enemy2.y=-100;
	}
	if(enemy1.y>500){
	score++;
	enemy1.y=-100;
	}
		You may wish to decrease the score if your goal is to shoot the enemies or collect things; in this case, you have successfully avoided them, so you get a point.
		
		The enemy is moving down the screen in this case.

T. Level Up (get faster)	//level up every 5 points
	if(score>(level*5)){
	level++;
	score++;
	speed++;
	enemy1.velocityY = speed;
	enemy2.velocityY = speed;
	}
		Requires some variables declared in the first section

U. Display Score	//display score
	textSize(20);
	fill("yellow");
	text("Score: "+score+" Level: "+level, 10, 20);
		Change the colour and size
		Display all of your variables