# Game Specification – Fruit Wizard!

You have been tasked with finishing off a 2D arcade game, in which the player controls a character using the arrow keys, and must collect randomly spawning food items around the play area, and bring them back to the shop to earn points. Preventing the player from doing this are a series of enemy robots that patrol the play area and will try and shoot the player. The player starts with 3 lives, and when they lose all of their lives the game is lost.

The game is partially implemented, but does not contain any of the AI, pathfinding, or physics elements, and it is up to you to implement them as you see fit – you can choose the speed at which the described entities move, how heavy the entities are, and how often their AI makes decisions.

# Game Entities

The game is comprised of a game map that fills the screen, made up of a series of platforms connected with ladders, and bounded by walls. The following game entities can also be added to the game world:

## The Player: Wizzy



The player controls their chosen player character using the arrow keys, and can walk around on platforms, and climb up ladders. Walls stop the player’s progress. The player can fall off platforms, and is affected by gravity, but suffers no ill effects from falling any height. The player starts with 3 lives. If the player is hit by an enemy, they lose a life, and must reset back to the start point in the bottom left of the map. If all lives are lost, the game resets, and the player begins again with a score of 0, and no Pixie Dust collected.

## Magic Spell



Being a wizard means that the player can cast spells! If the player presses space, they may cast a spell. This will launch in a random direction, where they will move at a constant velocity. If they hit the floor or a wall, they will bounce off it. After 3 of these bounces, the Spell should disappear. It should also disappear if its speed ever reaches 0. Spells collide with enemies, but no other entities. Spells are not affected by gravity. The player starts with 4 Spells.

## Enemy Type A: Guards



The game area contains 4 Guards, who will be distributed randomly throughout the level. If the player loses a life, the guards are randomly redistributed. Guards will wander from left to right – if they move more than 10 tiles from their starting point, or reach the edge of their platform, they will turn around. If the player is within 3 tiles of the guard, the Guard will move towards the player and try and hit the player with their spear. If the player moves away, or the guard has moved more than 10 tiles away from their starting position, they will return to their initial wandering.

If the Guard is hit by a Spell, the player will earn 200 points, and the Guard will be knocked backwards and be stunned for 5 seconds. If this causes them to fall off a platform, the tile they land on becomes their new starting point. While stunned a Guard cannot attack the player, and the player does not collide with them. Guards are lazy, and will not climb ladders.

## Enemy Type B: King Froggo



King Froggo will spawn at the top right of the map once the player has collected 16 pieces of fruit. He is *very* annoyed that the player is taking his fruit, and will chase the player across the map. King Froggo will use ladders to try and reach the player. He can also jump horizontally from platform to platform if necessary – he is quite lazy, though, and prefers not to. If the player is within 2 tiles he will periodically try and hit the player with his trident. If Pixie Dust spawns while King Froggo is on the map, he will try and protect it by moving towards it and standing on it, but will still try and attack the player if nearby. If King Froggo is hit by a Spell he is knocked backwards and is stunned for 3 seconds.

## Collectable Fruit



The game begins with 16 items of fruit placed randomly on platforms throughout the level. If the player touches a piece of fruit, it disappears, and the player earns 1000 points. Enemies do not interact with the fruit objects. If the player loses a life, the remaining fruit in the level are randomly redistributed. If the player collects all of the fruit, they earn an extra 5000 points, and all 16 pieces of fruit reappear, and are randomly distributed throughout the level. A new Guard will also be placed randomly in the map.

## Pixie Dust



Every 30 seconds, there is a chance that some Pixie Dust will spawn randomly in the map. Enemies do not collide with Pixie Dust. The player may collect the pixie dust to earn 500 points. If the player collects 4 pieces of Pixie Dust, they may press ctrl to activate Pixie mode, outlined below. If the player has 4 pieces of Pixie Dust, no more will spawn, until the player activates Pixie mode, or the player dies.

## Pixies



Activating Pixie mode will spawn 8 Pixies randomly throughout the level. They do not collide with the game world or enemies, but do collide with the player, where they can be collected to earn 1000 points, and increase the player’s Spell count by 1. The Pixies should move around the level using flocking rules to avoid any enemies on screen, and should also slowly move towards the player. If the player dies while Pixie mode is active all of the remaining Pixies will disappear.

## Ladder



Wizzy and King Froggo can use ladders to move from platform to platform. Both should move up and down the ladder at half the speed that they do on the platforms.