# Mechanics

* Jump
  + Single or double?
  + Press and hold to increase height?
  + Timings
    - Climb
    - Hang time
    - Fall
    - Coyote-time (jumping just after going off the edge of a platform)
    - Delayed jump frames (if you try to jump just before touching the ground)
    - Floaty or grounded?
  + Mid-air velocity change?
  + Maintained horizontal velocity from ground movement?
  + Wall jumping?
* Water
  + Start immediately?
  + Constant speed
  + Instant death, or breath holding mechanic?
    - Instant death in Rainbow Islands
    - Restart level upon death
  + Makes tokens inaccessible
  + Opaque or translucent?
* Movement
  + Acceleration
    - Slow = heavy
  + Top speed
  + Deceleration
    - Slow = slippery, hard to control
  + Acceleration and deceleration frames do not need to be equal
  + Direction change time
* Camera
  + Vertical scrolling
  + Move when player in top (and bottom?) third (?) of screen
  + First level, start with player in bottom of screen, to encourage moving upwards
* Platform types
  + Single-side pass through
  + No pass through
  + Drop-away
  + Spiked
  + Mobile (side to side etc)
  + Slippery
  + Colour-coding
  + Trampolines
  + Are the sides of the screens walls that can be jumped off/climbed?
    - Mario, Super Meat Boy, Celeste
* De-buffs
  + Loss of colour contrast (makes distinguishing platforms difficult)
  + Tunnel vision, but only stress when water within sight
  + Constant stress
  + Powerups increase stress
  + Unpredictable stress spikes
  + Become sluggish when not stressed
  + How should de-buffs be communicated to the player?
    - Descriptions are a bit boring, but they may not be intuitive to understand
    - Tutorial level
    - Visual or auditory feedback
* Powerups
  + Temporarily stop the water, but it speeds up afterwards
  + Cap the impact of stress
  + Temporarily reduce the impact of stress
  + Higher jumps
  + In-level pickups, or between-level purchases?
    - In-level (levels should be re-playable for completionism, the same each attempt)
* Stress effects
  + Jerkier movement
    - Decreased acceleration time
    - Increased deceleration time
    - Reduced hang time
      * Could increase rise and fall time to maintain overall airtime
  + Faster music
  + Vignette effect
  + Directly proportional to how close the water is, or increasing/decreasing over time when the distance is within certain thresholds?
    - The former could be quite jerky, but easier to understand
* Difficulty curve
  + Introduction of new platform types
  + Introduction of new de-buffs (and powerups)
  + Increased water speed
  + Greater density of tokens in a horizontal space
  + How close platforms are to one another (i.e. platforming difficulty)
  + Are levels grouped into “worlds”?
    - By de-buff?
    - By platforming difficulty?

# Implementation

* Ground detection
  + Update Boolean upon landing/jumping/going off an edge
  + ~~Check proximity when attempting to move/jump?~~
* Physics engine
  + Force resolution
    - Potentially makes controlling climb, hang time and fall time harder
      * Use different gravity values for rise and fall – they can’t be too different, or it’ll feel wrong
      * Finite state machine of movement
  + ~~Animation-based movements~~ 
    - Makes maintaining horizontal velocity implausible
* Controls
  + WASD
  + Arrow keys
  + Space to jump
  + Pause menu
  + Menu interactions
    - Mouse based
    - Keyboard based

Plays it until it is boring: 15-60 minutes