

#### Dungeon response:

- Test dungeon response with correct dungeon map name is generated
- Test that a dungeon is overwritten when a new game is started with dungeon response
- Test that dungeon response returns null for a non-existing dungeon
- Test that dungeon response returns null for a dungeon created with a dungeonName that is not a dungeon that exists
- Test that dungeon response returns null for a dungeon created with a configName that is not a configuration that exists

#### New game:

- Test that IllegalArgumentException is thrown if dungeonName is not a dungeon that exists
- Test that IllegalArgumentException is thrown if configName is not a configuration that exists

#### Item response:

- Test item has the correct id
- Test item has the correct type
- Test item response has the right output

#### Player movement:

- Test whether player movement is actually made:
  - Left
  - Right
  - Up
  - Down
- Test if player is prevented from walking into wall

#### Player:

- (Battle) *Test that when player's health  $\leq 0$ , player will die and game ends*
- (Battle) *Test that when player's health is reduced to 0.1, the player will not die*

#### Player picking up collectable items:

- test if the collectable item has disappeared off the grid once it has been picked up by player.
- test if the collectable item has been added to the inventory. (this needs item response to be tested)
- test if all collectable items in the same grid have disappeared off the grid once it has been picked up by the player. (and been added to the inventory which cannot be tested right now)
- test if the player can only pick up one key (the second key will stay in the tile)

#### Boulder:

- Test player cannot move two boulders adjacent at the same time
- test two boulders lined up and player cannot push any of the two

- test one boulder next to the wall and player cannot push
- test player pushes a boulder without constraints (player moves into the square that boulder was originally in)
- test player pushes boulder on a portal
- boulder can land on floor switch

#### Portal :

- Test successful teleportation from one portal to its corresponding pair
- Test successful teleportation with multiple portals -> chained teleportation (several colours)
- Test player teleports to the first cardinally adjacent square in the clockwise direction that is not blocked with an entity (2/4 squares blocked)
- Test blocking entity (all cardinally adjacent squares of the destination portal are blocked with a wall) -> player should remain at their current location
- Test zombie being bounded by walls and a portal (portal has no effect so zombie should remain in the same location)
- Test mercenary can teleport through portals

#### Zombie Toast Spawner:

##### Initial:

- Test zombie spawns in a cardinally adjacent square // In the top square first (no blockage nearby)
- Test zombie spawns in spawner's right square if top square is blocked by static entity (besides floor switch)
- Test zombie spawns in spawner's bottom square if top and right square are both blocked by static entities (besides floor switch)
- Test zombie spawns in spawner's left square if top, right and bottom square are both blocked by static entities (besides floor switch)
- Test zombie can spawn in spawner's top square if right, bottom and left squares are blocked by static entities (besides floor switch)
- Test zombie does not spawn if all cardinally-adjacent squares are blocked by static entities (besides floor switch)
- Test zombie spawns on top of collectable entities (e.g. treasure) (i.e. they co-exist in the same square)
- Test zombie can spawn on top of floor switch
- *Test two zombie toast spawners next to each other*
- Test zombie toast spawn rate when it is greater than 1

##### Player interactions with spawner

- When the player is cardinally on top of the spawner, they may break it (if they have a weapon) -> resulting in the spawner to be null (check using entity list to see if there are no more entities in that space) [sword]
  - When the player is cardinally to the right of the spawner, they may break it (if they have a weapon) [shield]
  - When the player is cardinally to the left of the spawner, they may break it (if they have a weapon) [bow]
  - When the player is cardinally down from the spawner, they may break it (if they have a weapon)

- When the player is 1 block away from the spawner, they cannot break it (even if they have a weapon) (spawner should still exist) (2tests- one with player has weapon and one without)
  - Should throw an invalid action exception
- Spawner should not break when the player does not have a weapon (from all directions)
  - Should throw an invalid action exception

#### Key and Door:

- key disappears when used to open the right door
- when player stands on door which the player does not have the key for, player stays in original position
- when door is opened, players can go through
- when door is opened, any other entities can go through (including boulders which will be tested in this test)

#### Battle:

- if there is a mercenary on the same tile as player, battle and mercenary dies.
- if there is a mercenary on the same tile as player, battle and player dies.
- if there is a spider on the same tile as player, battle and spider dies.
- if there is a spider on the same tile as player, battle and player dies.
- if there is a zombie toast on the same tile as player, battle and zombie dies.
- if there is a zombie toast on the same tile as player, battle and player dies.
- If player has a sword and battles mercenary, mercenary dies.

#### Bomb:

- Bomb can be collected by the player
- When bomb is placed, it is removed from the player's inventory
- When bomb is cardinally adjacent to an active switch, it destroys entities in diagonally and cardinally adjacent cells (excluding the player at the centre - 'square' blast radius)
- Bomb can destroy other bombs within blast radius
- When bomb is placed next to an inactive switch, that switch becomes active
- Bomb cannot be picked up once it has been used

#### Basic Goals:

- exit goal success
- boulder and switch goal success
- enemies goal success
- Treasure goal success

- player wins the game once the goal is achieved

#### Complex Goals:

- test and composite goals
- test or composite goals
- test both and and or

#### Zombie Toast:

- Moves away from starting position (doesn't matter where it is located)
- Cannot move into boulders, walls, closed doors or portals

#### Spider:

- Spider spawns every tick provided by config
- If a spider is stuck between two boulders in its movement path, it should remain still
- Test spiders can climb over walls, switches, doors, exits, portals and zombie toast spawners.
- Spider can get stuck under boulder

#### Mercenary:

- Basic movement
- Can teleport
- Can't traverse boulder, wall, closed doors and zombie toast spawners
- Sidestep wall to get to player
- Test swamp tiles will affect mercenary movement
- Bribery:
  - Test exception is thrown does not have enough gold to bribe
  - Test exception thrown when the player is out of range to bribe
  - Test the bribed mercenary does not enter same cell as player to battle player
  - Test the mercenary follows the player after being bribed
  - Test bribe radius of two will enable mercenary to teleport to player's last position
  - Test different bribe amounts
  - Test bribed mercenary will follow player through portal
  - Test the mercenary contributes attack and defence buff in battle

#### Shield:

- Player does not have enough materials to craft shield (e.g. 1 wood and 1 key or 2 wood and no key/treasure)
- Shield is broken after durability runs out

- Player can only make shield after picking up required materials
- When shield is made, the required materials are gone from the player's inventory (test that shield is added to inventory and the materials are no longer in player's inventory list)
- When all the required materials are collected, sunstone and wood are used first (sunstone is retained, key and treasure still remain in inventory, and wood is used up)
- Shield is protecting player (decreases enemy attack)
  - Shield breaks once durability is reached (after a battle)

#### Bow:

- Bow is successfully crafted with 1 wood + 3 arrows inside inventory
- Bow is broken after durability runs out
- Bows give the Player double damage in each round

#### Midnight Armour:

- Successfully crafted with 1 sword and 1 sunstone when there are no zombies in the dungeon
  - Sword and sunstone should disappear from inventory
- Raises invalid action exception when there are zombies in the dungeon and player tries to craft
- Does not break after battle
- Gives player extra attack damage during battle