

LEVEL DESIGN CONVENTIONS

WARNING: NEVER APPLY CHANGES TO PREFABS, AND CERTAINLY DON'T COMMIT THEM TO SVN.

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CHANGE LOG:

- Version 1.0 Wrote the basics of setting up a level.
- Version 1.1 Wrote the Theme / World conventions and a level list for Theme 1 – Space Exploration. Also added the collectables and minimum level requirements.
- Version 1.2 Updated Setting up a level. The table for zoom levels is explained more clearly, “MStarting Zoom Level” has been added, and the minimum level requirements has been updated.
- Version 1.3 Added more information about the collectables.

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THEME / WORLD CONVENTIONS

Game modes

- Mission levels are for short burst of gameplay. Exploration levels are for longer, more free roaming, play sessions.
- Missions introduce mechanics to the players and teach them how to play the game. They offer small challenges to the players which they have to overcome.
- Explorations allow players to explore the levels and enjoy the game. They offer more endurance challenges and are more free roaming. Player's don't get mechanics explained in explorations and allow the players to explore the mechanics themselves.
- Every 2 exploration levels correspond with every 5 missions levels. They use mechanics introduced up to that point. (This is aimed at mechanics used, not unlocking levels.)

Unlocking

- The first Mission is unlocked at the start of the game. The first Exploration is unlocked after completing the first 5 missions.
- Missions are unlocked in order, where one mission is unlocked after completing the previous one. The last 5 levels can be unlocked on medal requirements (optional).
- Exploration levels are unlocked in a similar way, but these correspond with the wormhole which is passed through. This means that one level can have two wormholes, where these wormholes will each unlock a different level.
- To unlock the next theme 80 bronze medals, or 60 gold medals, have to be obtained (for theme 2).

LEVELS THEME 1 – SPACE EXPLORATION

MISSIONS

Level	Description	Further notes
1	Introduction to the game; Only has 1 planet, teaches orbiting and the wormhole. (bouncing, level edge only noted when needed, near level edge). No speed reductions.	The wormhole is opened from the start and Start without booster charges.
2	Start straight at a planet; teaches bouncing, to slow, speed increase. All planets are the same size (no smashing).	The wormhole is opened from the start and start without booster charges.
3	Introduction of the minimum wormhole speed and repetition of the above. All planets are the same size (no smashing).	Start without booster charges.
4	Introduction the smashing (two body sizes, 1 smash, 1 orbit).	Start without booster charges.
5	Repetition of the above with more than 2 body sizes. (also to illustrate the change of zoom levels to smash things.)	Start without booster charges.
6	Start with a meteor coming at the player; introduce boosters + meteors.	Start without booster charges.
7	Repeat use of boosters, but now start with 3 charges.	3 booster charges.
8	Level around a sun, introduce crashing.	
9	Repeat all above (orbit, bounce, smash, crash, booster)	
10	Repeat all above (orbit, bounce, smash, crash, booster)	

11	An asteroid field blockade, introducing asteroid fields as non-level boundary.	
12	Spiral level asteroid fields (?)	
13	Introduce the molecular clouds.	
14	Level containing molecular clouds.	
15	Level containing asteroid fields and molecular clouds.	
16	Introduce breakable planets.	
17	A level which contains breakable planets.	
18	A level which contains breakable planets.	
19	Introduce white dwarfs.	
20	Introduce black holes as the large version of white dwarfs.	Dynamo Level.
21	Combine multiple elements introduced thus far, or a lot of one.	
22	Combine multiple elements introduced thus far, or a lot of one.	
23	Combine multiple elements introduced thus far.	
24	Combine multiple elements introduced thus far.	
25	Combines all elements introduced thus far; meteors, asteroid fields, molecular clouds, breakable planets, and white dwarfs.	*and/or black holes

EXPLORATIONS

Level	Description	Further notes
1	Allows players to explore the exploration collectables and the galaxy level edge. Contains Planets, Wormhole, Galaxy Level Edge, Minimum speed, Bouncing, and Smashing.	Exploration levels don't include tutorial explanations.
2	Contains the same as the above level.	
3	Include crashing, boosters, and meteors as general mechanics.	Is core gameplay.
4	Contains the same as the above level, starting with 3 booster charges.	
5	Include meteors, asteroid fields, black holes and white dwarfs.	

SETTING UP A LEVEL

All Z Positions should be 0 otherwise there is the possibility that it's not interactive.

MINIMUM LEVEL REQUIREMENTS

A short list off all objects which each level must have;

- The standard gameplay objects (ship, camera, UI, etc.). These objects should already be in the scene. All level specific settings have to be set (see below).
- A Wormhole, as this is the level finish. Note that exploration levels can have more than 1 wormhole.
- Level Edges which surround the entire level. This is to make sure players stay inside the level and do not glitch the game.
- Explorable Squares, these are to award the player points for exploration and check how much of the level they've explored.
- Collectables, which are one of the reasons to further explore a level. Each mission level should have 3 collectables in the form of pods. Each exploration level should have 5 collectables, four of which are pods and one a unique body. These unique bodies will be different for each exploration level resulting in 10 different ones per theme.
- All settings for specific elements (see below for each individual element).

OBJECTS LOCATIONS IN THE HIERARCHY

Create an empty game object called "Level Objects". This "Level Objects" should contain a few more game objects;

- "All Planets": This one contains all bodies which can be orbited.
- "Collectables": Place all collectables in here.
- "Exploration": This one contains all ExplorableSquares.
- "Level Edge": This one contains all objects which are used as the edges of the level.
- "Special Objects": This one contains all level objects which aren't normal bodies (such as meteors, asteroid fields, breakable planets, etc.).
- "WormHole": This is the wormhole object.

LEVEL OBJECT SETTINGS

Only settings which can be changed are mentioned, all unmentioned settings should be left as they are in the prefab.

Planets / Orbitable bodies

- Smash Score: This should be $40 + (\text{"MCan Be Smashed At Zoom Level"}) * 20$. This means something which can be smashed at zoom level 3 gives 100 points. Something which can be smashed at zoom level 33 gives 700 points.
The exception to this is objects which can be smashed at zoom level 99. These should give 750 points. (For collectables; normal ones give 250 points, unique ones give 500.)
- MGravity Strength: This should always be 1, except for Black Holes and White Dwarfs. In this case it should be 3.
- MCan Be Orbited At Zoom Level, MCan Be Smashed At Zoom Level, MDisappears At Zoom Level: These should be set to the lowest zoom level at which the body can be orbited, smashed, or disappears respectively. See the table below.

Do note that if something shouldn't disappear at the highest zoom level that should be set to 100.

How to read this table: This table shows for each zoom level, the minimum and maximum speed, and the body scale ranges. If the body's scale is below "Crash – Orbit Scale Threshold" it can be orbited at that zoom level. If the body's scale is below "Orbit – Smash Scale Threshold" it can be smashed. If the body's scale is below "Smash – Disappear Scale Threshold" it disappears.

Zoom Level	Crash – Orbit Scale Threshold	Orbit – Smash Scale Threshold	Smash – Disappear Scale Threshold	Speed		Zoom Level
				Min	Max	
0	2,5	0,5	0	0	4	0
1	4,375	0,875	0	4	7,2	1
2	6,875	1,375	0	7,2	11,5	2
3	10	2	0	11,5	17	3
4	13,75	2,75	0	17	24	4
5	18,125	3,625	0	24	32	5
6	22,5	4,5	0	32	40	6
7	27,5	5,5	0	40	50	7
8	32,5	6,5	0	50	60	8
9	38,125	7,625	0	60	72	9
10	43,75	8,75	0	72	84	10
11	50	10	0	84	97	11
12	56,25	11,25	0	97	111	12
13	62,5	12,5	0	111	125	13
14	68,75	13,75	0	125	140	14
15	75	15	0	140	158	15
16	81,25	16,25	0	158	175	16
17	87,5	17,5	0	175	190	17
18	93,75	18,75	0	190	207	18
19	100	20	0	207	225	19
20	106,25	21,25	0	225	240	20
21	112,5	22,5	0	240	262	21
22	118,75	23,75	0	262	285	22
23	125	25	0	285	308	23
24	131,25	26,25	0	308	333	24
25	137,5	27,5	0	333	350	25
26	143,75	28,75	0	350	375	26
27	150	30	0	375	400	27
28	156,25	31,25	0	400	425	28
29	162,5	32,5	0	425	450	29
30	168,75	33,75	0	450	475	30
31	175	35	0	475	505	31
32	181,25	36,25	0	505	530	32
33	187,5	37,5	0	530	555	33
99	206,25	41,25	0	555	555	99
Zoom Level	Crash – Orbit Scale Threshold	Orbit – Smash Scale Threshold	Smash – Disappear Scale Threshold	Speed		Zoom Level
				Min	Max	

LEVEL SPECIFIC SETTINGS

Only settings which can be changed are mentioned, all unmentioned settings should be left as they are in the prefab.

- **Starting speed:** This can be found in the “Ship_holder”, where an X, Y, and Z speed can be set.
 - X = horizontal speed (positive = right, negative = left).
 - Y = vertical speed (positive = up, negative = down).
 - Z should always be 0
- **MStarting Zoom Level:** This should be set to the zoom level at which the level starts (and thus depends on the starting speed).
- **Camera zoom:** Go to “Camera” and change the “Size” setting.
 - For Mission levels, make sure the camera gives players an overview of the entire level at the start.
 - For Exploration levels, set the camera to the right zoom scale (found at the bottom of the camera) for the starting speed.
- **Collectables:** Mission levels will each have 3 collectables, exploration levels will each have 5 collectables (4 regular ones, and 1 unique collectable). Each collectable should have a “Unique Collectable Number” different from all other collectables in the game. To determine this number apply the following system;
 - For mission levels; $(world\ number - 1) * 125 + (lv.\ number - 1) * 3 + collectable\ number$ (either 1, 2, or 3).
 - For exploration levels; $75 + (world\ number - 1) * 125 + (lv.\ number - 1) * 5 + collectable\ number$ (either 1, 2, 3, or 4, and 5 is always for the unique collectable).
- **Victory and speed medals:** These settings can be changed in the wormhole. “Velocity Required For Bronze” is the minimum speed required to complete the level. The settings for the other medals should be higher than this.
- **Medal Requirements:** At the bottom of the “Ship_Holder” the settings for the score and time medals can be found. Score requirements should increase in size for higher medals. Time requirements should decrease in size for higher medals (this is time in seconds).

Guidelines for medals:

 - **Bronze:** Minimum effort should be required. Most can be obtained by completing the level in a normal way and they function to give the player the idea they did something good while they can try again to do better. These should be obtainable in a single try (unless the player perform very badly).
 - **Silver:** These require little effort from the player to obtain. These should be easily obtainable if the player tries to obtain the medals and require 1 to a few tries.
 - **Gold:** These require some effort from the player to obtain. Players will really have to try to obtain these. The amount of tries depends on the player’s skill.
 - **Diamond:** These are secret medals which should be very difficult to obtain. They form the ultimate challenge for the player.
- **Exploration:** At the bottom of “Ship_Holder” the settings can be found for showing exploration messages. The “100Explored Message” should always be enabled. The other three should only be enabled in Exploration levels, not in Mission levels.