

MTEC 3175

Week 5: “Game Design Process”

Lecture: Pipeline - Process, Tools, Roles & Distribution

Game & Reading Response, Again!

Brutal Honesty & Questions *Especially* Appreciated

Playtimes from Howlongtobeat.com:

Dear Esther: 1.5

Gone Home: 2 / 2.5

Firewatch: 4 / 4.5

GRADING NOTES SO FAR

- 1) Please try to at least post something for every GJ and RR! Zeroes are super hard to make up...
- 2) Images on Game Journal Posts = Extra Credit
- 3) Grammar & Formatting Count
- 4) Ideally, more original analysis, less repeating content

Making games is complicated...
WHERE TO START?

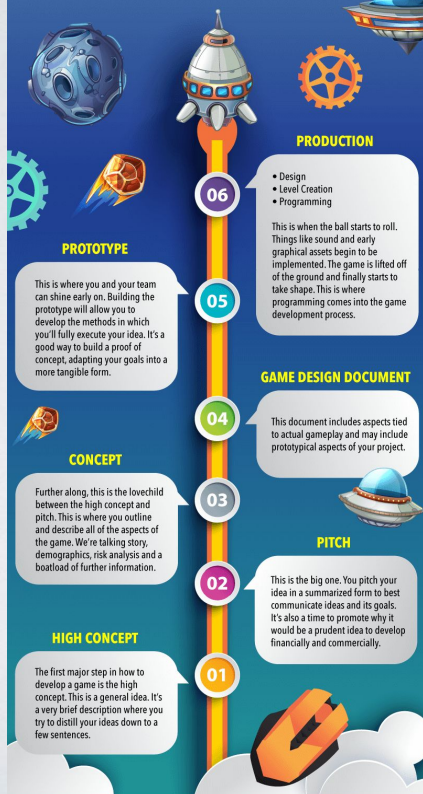
THE (Old?) PIPELINE

(According to Dr. Boisvert)

- **Concept** (Pre-Production)
- **Design** (Production)
- **Development** (Production)
- **Launch** (Beta-Testing & Marketing)

THE VIDEO GAME DEVELOPMENT PROCESS

STAGES OF VIDEO GAME DEVELOPMENT



Y21 M2 W3 .

\$564,629.5K

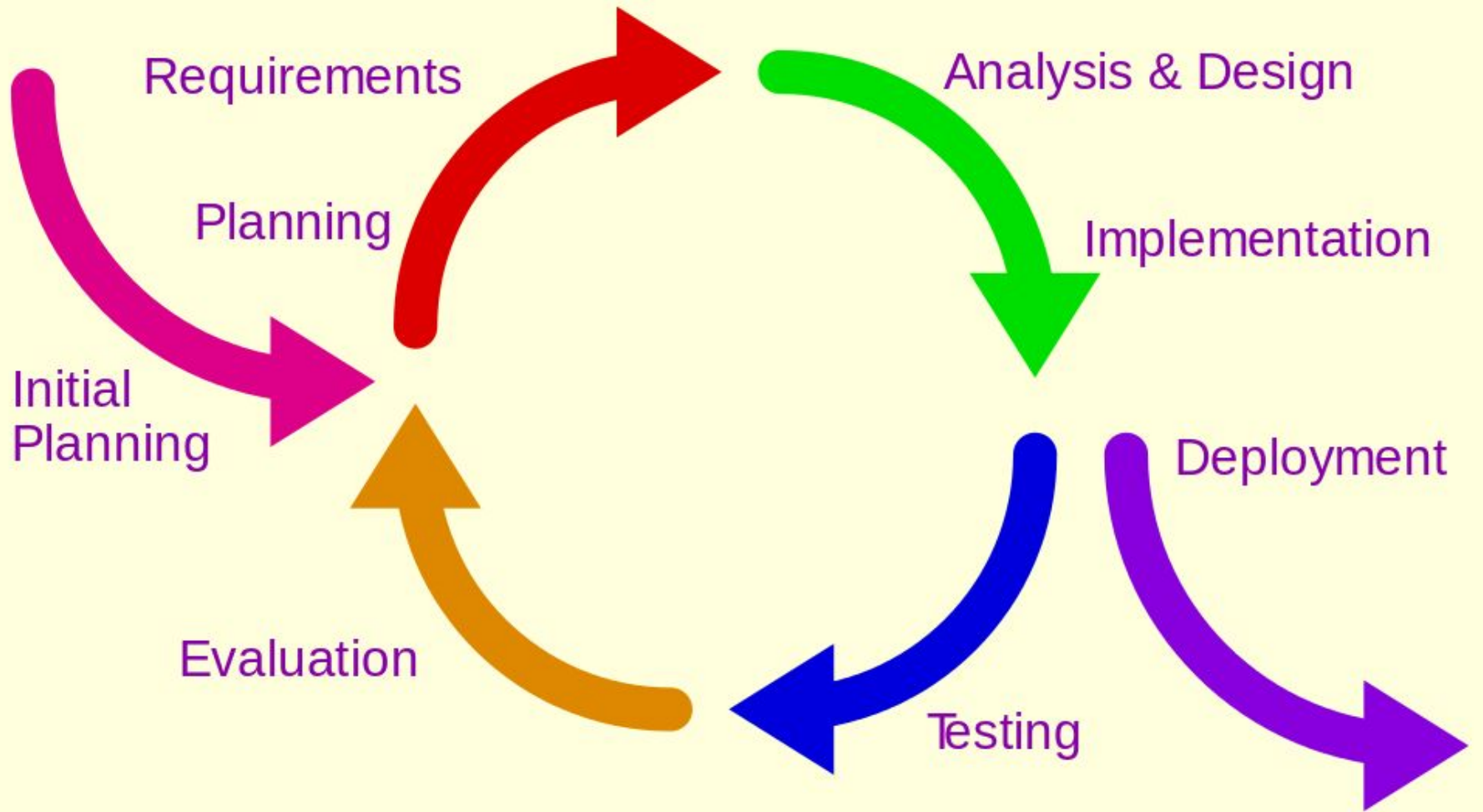
 481



Save

New		12		21		17		18
17%	Hype	40	Fame	51		0		

Menu





“A delayed game is eventually good.
A bad game is bad forever.”

- Shigeru Miyamoto

Forced-To-Ship

- *KOTOR II*
- *No Man's Sky*
- *E.T. the Extra-Terrestrial*

Delayed

- *Eternal Darkness: Sanity's Requiem*
- *Breath of the Wild*
- *Animal Crossing: New Horizons*

CONCEPT

- high concept & pitch
- concept document*
- concept art
- world building document*
- game design document (GDD)*
- technical design document (TDD)*
- paper prototype

Contents

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Game Development Team

PRODUCER

Michael Sehgal

PRODUCTION MANAGER

Adam Crespi

PRODUCTION COORDINATOR

Aline Tosini

GAME DESIGNERS

Adam Crespi

Kris Orpilla

SYSTEMS/IT COORDINATOR

Laura Johnston

PROGRAMMERS

Mike Geig

Emil Johansen

Arturo Nunez

Mike Preble

TECHNICAL ARTISTS

Craig Barr

Kris Orpilla

Sergio Gardella

Game Objectives

The objective of the game is to survive for as long as possible, while attacking Enemies and scoring points.

Game Rules

The game level is a closed environment set in a child's room where the Player is attacked by fluffy zombified toys. The Player can move around and attack these Enemies with 4 different Weapons (see Weapons). In this level, there are different spawn points from which the Enemies originate. Each Enemy has a different behavior and will try to defeat the Player (see Enemies). The Player scores points by killing Enemies; the number points earned depends on the Enemy type. After collecting a specific number of points (see Allies), the Player can spawn an Ally who will help him for a limited amount of time.

Game Structure



Player

Player Characters

The boy and girl live a wonderful life at their age of 4. They have a great room where they sleep at night. Problem is, their parents have given them too many plush animals without noticing that at night they all become zombie!



Player Metrics

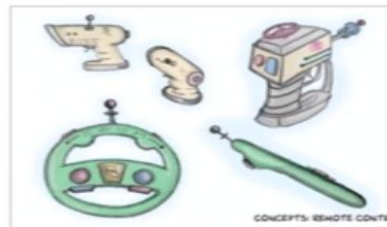
- Speed:** 6
- Max Health:** 100
- Attack Damage:** N/A
- Time to attack:** Depending on weapon

Player States

Idle: The idle state is a cycled animation where the Player is yawning. It plays back when the Player remains still.

Move: The movement animation will cause the character to bounce with little jumps. It will be triggered when the Player moves the character.

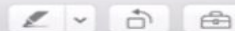
Death: The death animation will make the character fall backwards when their life reaches zero.



Player Weapons

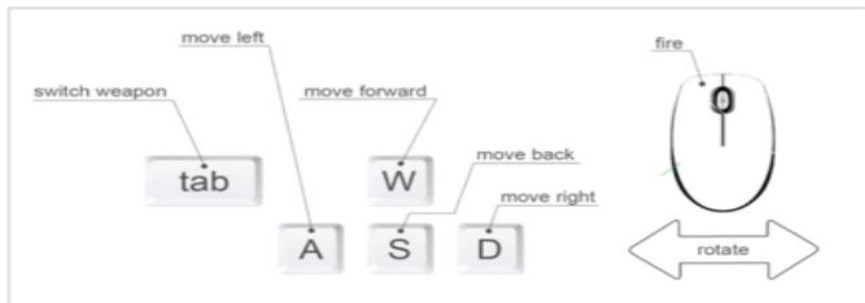
The Player has 4 different Weapons to attack the Enemies, each with a different effect.

WEAPON	DESCRIPTION	EFFECT ON ENEMY	COOLDOWN	RETICLE
Lightning Ray	Fires a Lightning Ray effect from the Player RC in the direction of the mouse cursor	Restores 50 to the health of the Enemy	1	No
Freeze Ray	Fires a Freeze Ray effect from the Player RC in the direction of the mouse cursor	Freezes a maximum of 20 Enemies, so they	0	No



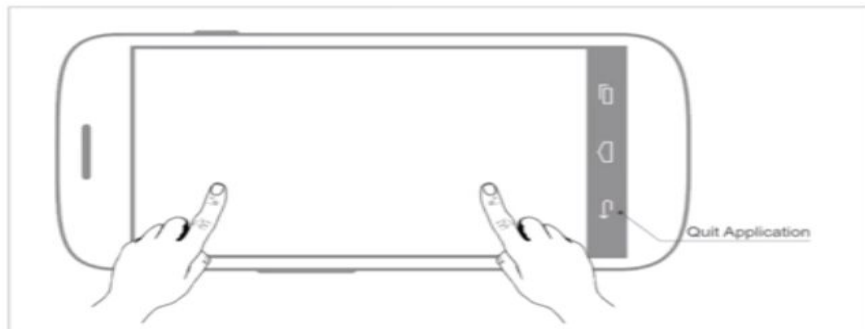
Gameplay

Game Controls (PC)



Game Controls (Mobile)

With touch control, the Player will use two fingers to move the character, aim, and attack. The first finger that presses the screen will move the character, while the second finger that presses the screen will make the Player attack (i.e. fire/shoot) in that direction.



Game Camera

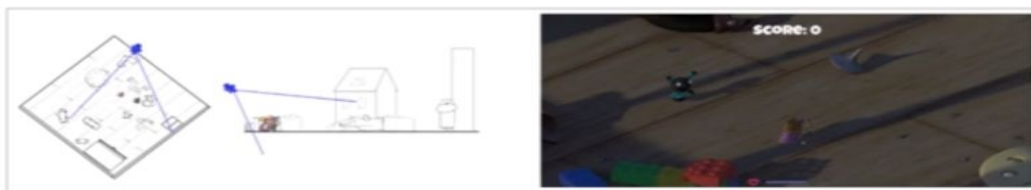
When the game starts, the camera will focus on the two characters the Player can choose from. The camera will remain still while the Player chooses a character to play with.

After the selection is made, the camera will turn 180 degrees and will continue following him/her from a fixed point of view. The camera will not rotate with the Player's movement.



The background will be seen from a 3/4 perspective but for convenience it will be rotated by 90 degrees so that the camera can use the global coordinate system.

The camera will not turn when the Player does, so we get to see him/her from different angles as the scene maintains the same camera view.



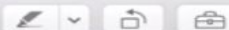
HUD

PLAYER DAMAGE

Indicates the amount of life the Player has

COUNTDOWN SLIDER

SCORE:

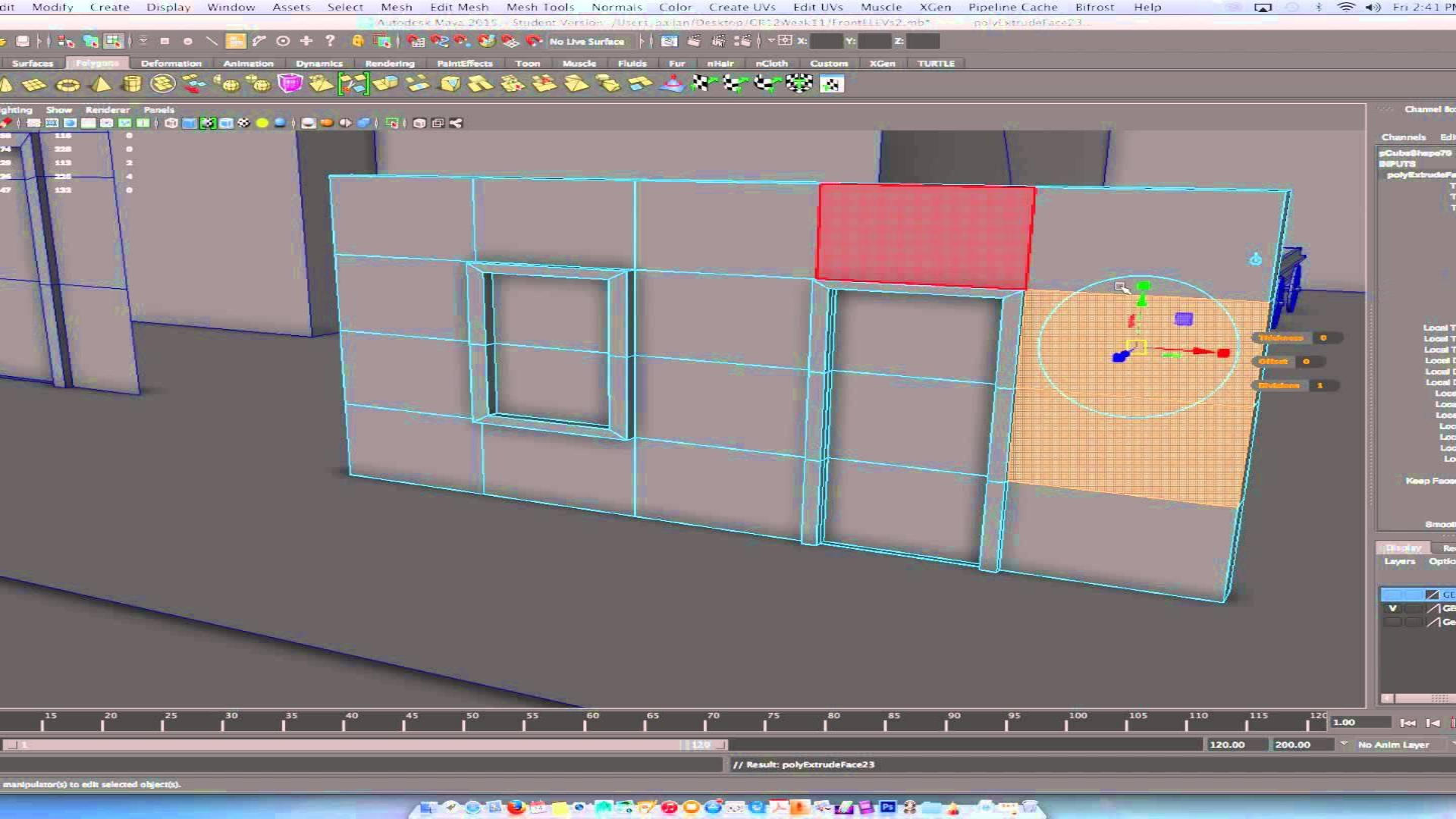


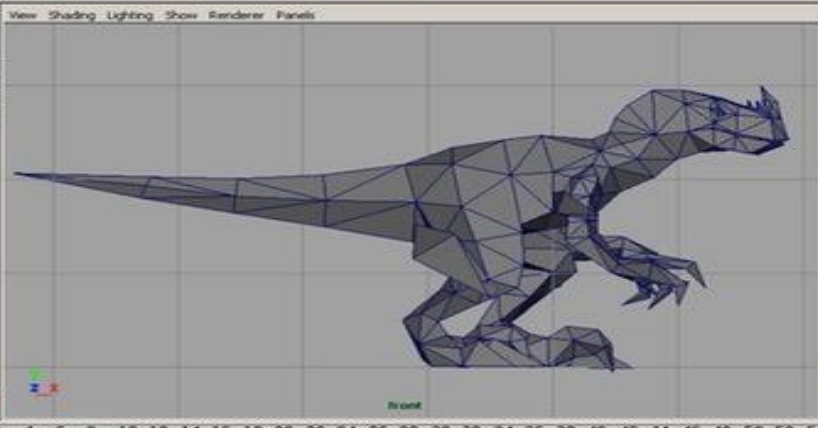
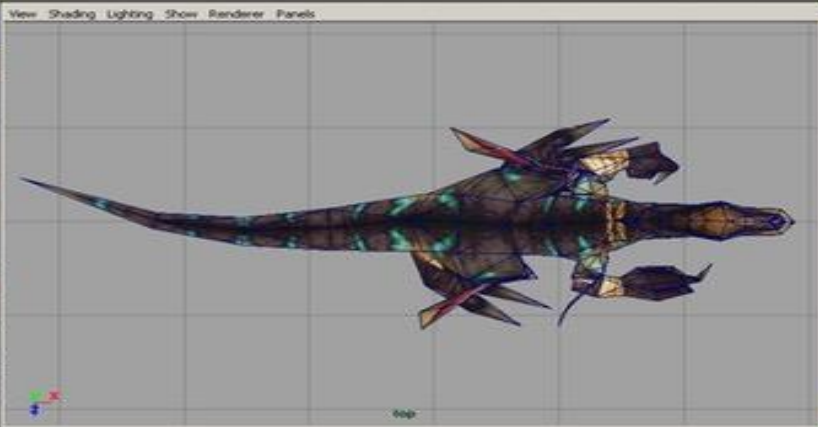
Audio

NAME	CATEGORY	DESCRIPTION
music_rev1_loop_01	Background music	Plays during the game
Lightning Zap	FX	Lighting Attack fire
wpr_elec_attack_01	FX	Lighting Attack fire, variance 1
wpr_elec_attack_02	FX	Lighting Attack fire, variance 2
wpr_elec_attack_03	FX	Lighting Attack fire, variance 3
wpr_elec_hit_01	FX	Lighting Attack hits something, variance 1
wpr_elec_hit_02	FX	Lighting Attack hits something, variance 2
wpr_elec_hit_03	FX	Lighting Attack hits something, variance 3
wpr_gas_attack_01	FX	Stink bomb Attack fire
wpr_gas_attack_loop_01	FX	Stink bomb Attack smoke
wpr_gas_equip_01	FX	Optional (sounds when weapon is selected)
wpr_gas_hit_01	FX	Stink bomb Attack hits something, variance 1
wpr_gas_hit_02	FX	Stink bomb Attack hits something, variance 2
wpr_gas_hit_03	FX	Stink bomb Attack hits something, variance 3
wpr_gas_target_01	FX	N/A
wpr_goo_attack_02	FX	Slime Attack fire
wpr_goo_equip_01	FX	Optional (sounds when weapon is selected)
wpr_goo_hit_02	FX	Slime Attack hits an Enemy
wpr_goo_hit_loop_01	FX	Slime Attack attaches to an Enemy
wpr_ice_attack_01	FX	Freeze Attack freezes an Enemy
wpr_ice_blast_loop_01	FX	Freeze Attack firing
wpr_ice_equip_01	FX	Optional (sounds when weapon is selected)
wpr_ice_freeze_01	FX	Freeze Attack freezes an Enemy, variance 1
wpr_ice_freeze_02	FX	Freeze Attack freezes an Enemy, variance 2
wpr_ice_freeze_03	FX	Freeze Attack freezes an Enemy, variance 3
wpr_ice_hit_01	FX	Optional (for when the Enemies break the ice)
wpr_ice_hit_02	FX	Optional (for when the Enemies break the ice)
wpr_ice_hit_03	FX	Optional (for when the Enemies break the ice)
Helephant Death	FX	When the Helephant dies
Helephant Hurt	FX	When the Helephant gets damaged

DESIGN

- **gameplay mechanics** (navigation, controls & triggers)
- **story development** (storyboards, scripts)
- **asset creation** (2D/3D art, textures, materials, characters, sound, GUIs)
- **level design** (asset integration, layout, lighting)





Channels Object

Display Render

Layers Options Help

1.00 100.00 100.00 No Character Set



(108) Desktop.004

DEVELOPMENT

- scripting game play
- scripting behaviors
- scripting AI
- scripting tools
- scripting GUIs
- testing & debugging

```

    );
    Collections;

    scriptPlayer : MonoBehaviour {
        , spotReached, north, south, east, west;
        int direction, steps, speed;
        GameObject moveP; GameObject gameSFX; GameObject gameBGM; AudioSource sfxScript; AudioSource bgmScript;
        Color colorStart; Color colorEnd; float duration = 0.3f;

        () { // Use this for initialization
            false; north = true; south = false; east = false; west = false; spotReached = true;
            Globals.pSpeed; steps = 0; direction = 1; // N = 1, E = 2, S = 3, W = 4
            GetComponent<movePlayer>();
            = GameObject.FindWithTag("Audio"); sfxScript = gameSFX.GetComponent<AudioSource>();
            = GameObject.FindWithTag("Music"); bgmScript = gameBGM.GetComponent<AudioSource>();
            rt = renderer.material.color; colorEnd = new Color(colorStart.r, colorStart.g, colorStart.b, 0);

            e() { if(!Globals.paused){ // Update is called once per frame
                if still moving to square
            } // moving to next space
            (spotReached){
                north){ direction = 1; transform.eulerAngles = new Vector3(0, 0, 0); }
                east){ direction = 2; transform.eulerAngles = new Vector3(0, 0, 270); }
                south){ direction = 3; transform.eulerAngles = new Vector3(0, 0, 180); }
                west){ direction = 4; transform.eulerAngles = new Vector3(0, 0, 90); }

                spotReached = false; if(steps == 3) sfxScript.SendMessage("Move");
                if still moving in direction
                count steps until in next space
                Globals.readyP) moveP.Move(direction); steps++; if(steps >= (20/speed)){ steps = 0; spotReached = true; }

                // let go of button
                (spotReached){ // let go of button, but still moving
                Globals.readyP) moveP.Move(direction); steps++; if(steps >= (20/speed)){ steps = 0; spotReached = true; }
            }
        }
    }
}

```



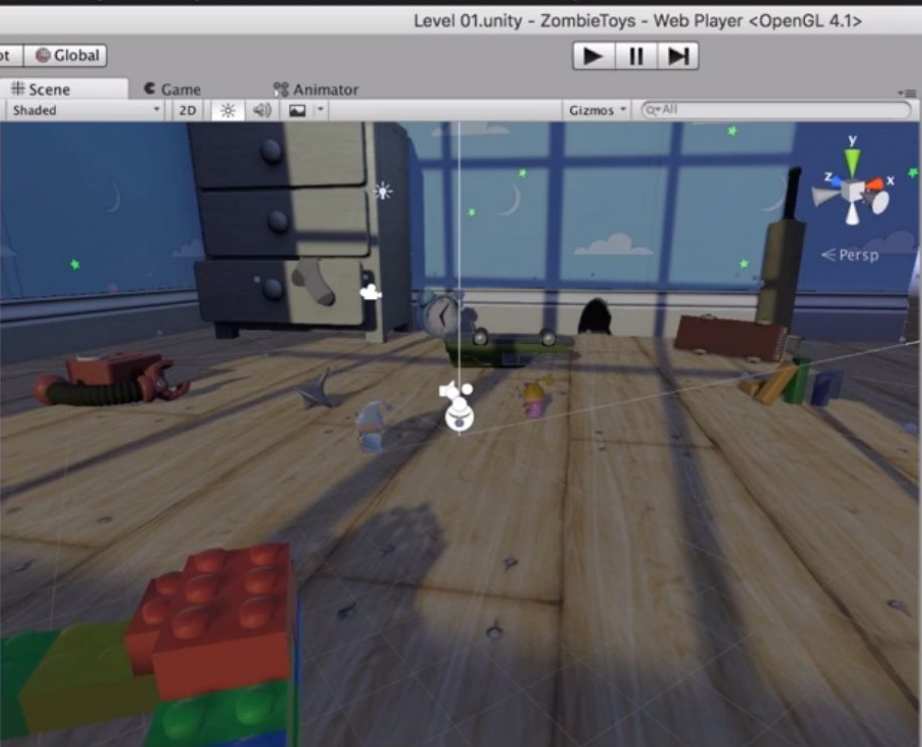

LAUNCH

- 1st playable
- alpha
- beta
- code release (bugs fixed & shipped)



TOOLS - GAME ENGINES

- In-House (Build from Scratch; Scimitar or CryEngine)
 - Used to be more common... now slightly crazy to do
- Full Tool Chain (Unreal & **Unity SDKs**)
- Middleware & Integrated Libraries



Inspector Navigation Services

Moonlight Static

Tag Untagged Layer Default

Transform

Position	X -41.2	Y 29.6	Z -30.8
Rotation	X 18.8323	Y 51.7481	Z -178.8206
Scale	X 1	Y 1	Z 1

Light

Type Directional

Baking Realtime

Color

Intensity 0.75

Bounce Intensity 1.3

Shadow Type Soft Shadows

Strength 1

Resolution Use Quality Settings

Bias 0.05

Normal Bias 0.4

Near Plane 0.2

Cookie Sunlight_Cookie2-01

Cookie Size 30

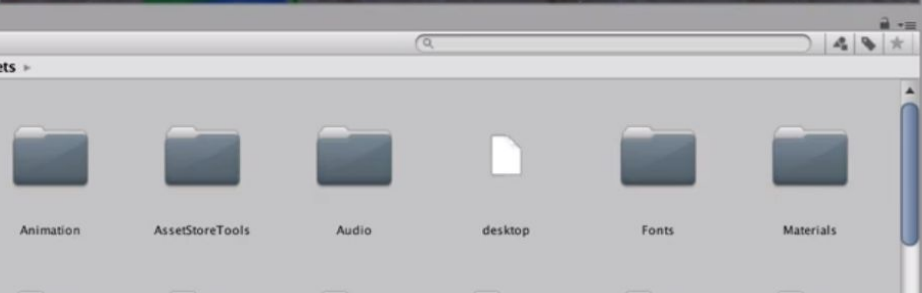
Draw Halo

Flare None (Flare)

Render Mode Auto

Culling Mask Everything

- Nothing
- Everything
- Default
- TransparentFX
- Ignore Raycast
- Water
- UI
- Floor
- Shootable
- LightMask
- Invisible
- RenderOnTop
- IgnoreHits
- Blocking
- Props

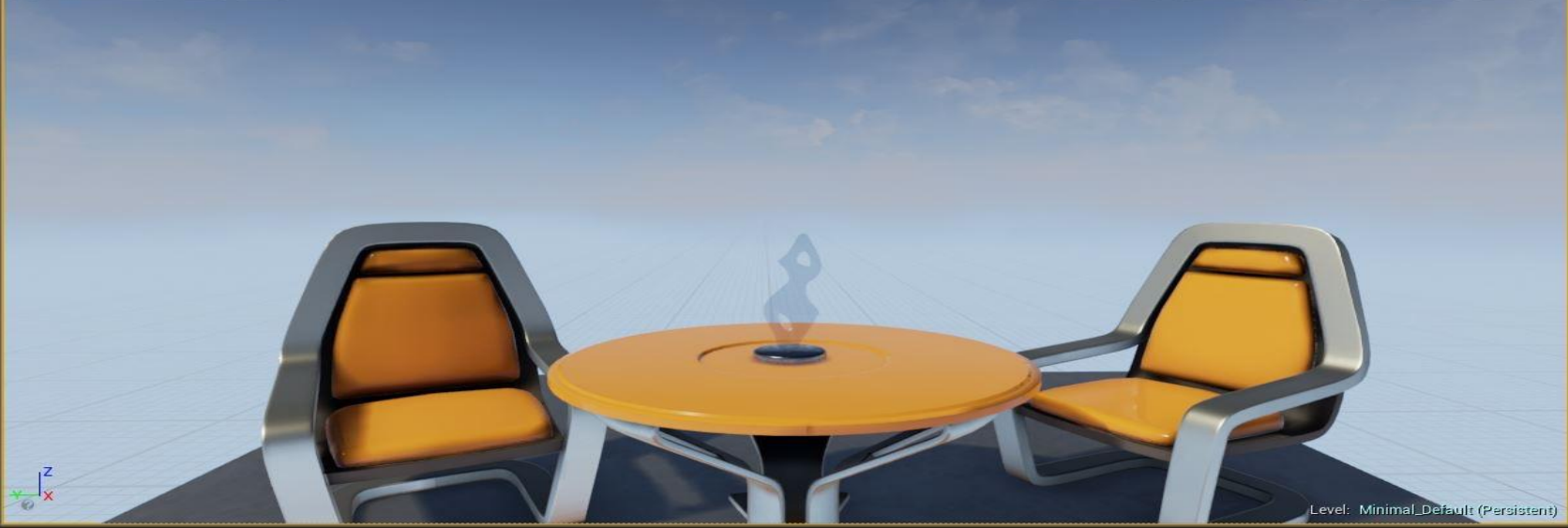




- Save
- Source Control
- Content
- Marketplace
- Settings
- Blueprints
- Matinee
- Build
- Play
- Launch

Perspective Lit Show

10 10° 0.25 4



Level: Minimal_Default (Persistent)

Scene Outliner

Search...

- Label
- Sphere
 - Sky and Atmosphere
 - BP_Sphere
 - Static Mesh
 - Chair
 - Chair
 - Floor
 - Floor
 - Statu
- 13 actors (1 selected)

Details

BP_Sky_Sphere

Search

+ Add Component

BP_Sky_Sphere (1)

Base

Sky Sphere mesh

Transform

Location

Rotation

Scale

Default

Refresh Material

Directional Light Actor

Sun Brightness

Cloud Speed

Cloud Opacity

Stars Brightness

Override Settings

Sun Height

Horizon Falloff

Zenith Color

Horizon Color

Cloud Color

Overall Color

Rendering

Actor Hidden In Game

Content

Filters Search Assets



Starter Content

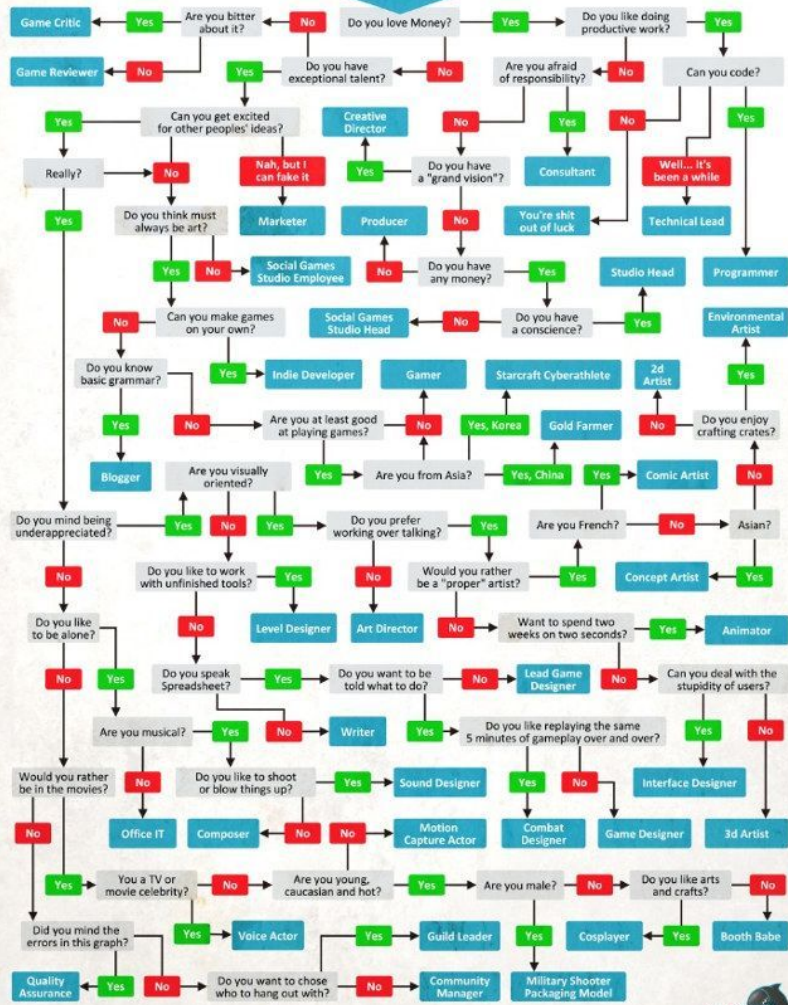
1 item

View Options



ROLES & RESPONSIBILITIES

Start





The Art Director

Ensures the overall look and feel is consistent

Verifies that all game assets adhere to the concept art and intellectual property specifications



The Concept Artist

Generates the initial ideas of characters and environments for the game

Defines the look and feel of game elements



The Environment Artist

Constructs environment assets including models and textures

May create environment concept art depending on studio size



The Character Artist

Constructs characters and props including models and textures

May create character concept art depending on studio size



The Technical Artist

Helps bring assets into the game, including animations

Ensures art is optimized for a game engine



The Game Designer

Designs and implements game mechanics and game play in the levels

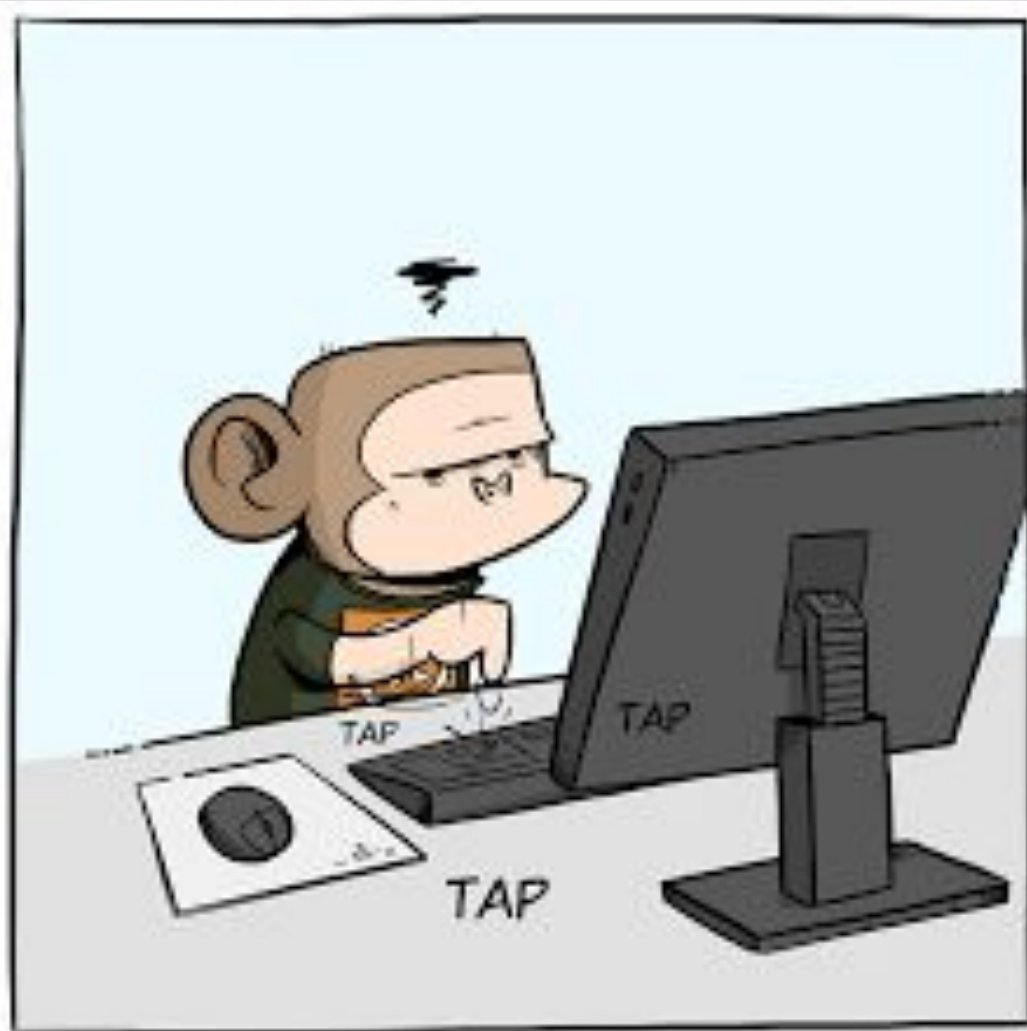
May do considerable scripting of behaviors and animations



The Level Designer

Plans and builds environments

May also light the level and add characters depending on studio size



Y21 M2 W3 .

\$564,629.5K

 **481**



Save

New

17%



12



21



17



18

Hype

40

Fame

51



0

Menu

MONETIZATION

- **physical purchase** - buy a game packaged on DVD
- **download** - buy a game via digital download
- **subscription** - requires continuous ongoing payment
- **freemium** - free to play initial, additional or upgraded levels or content can be purchased
- **in-game purchase** - purchase content within the game via micro-transaction
- **advertising** - publishers embed ads in game... worth a lecture on its own...
- **shareware** - ancient method, spread free demo on CD, pay to unlock game



- Browse by genre
- Free to Play
- Early Access
- Action
- Adventure
- Casual
- Indie
- Massively Multiplayer
- Racing
- RPG
- Simulation
- Sports
- Strategy

Featured Items Games Software Hardware Videos News For You search the store



\$14.99

Now Available



Midweek Madness

Offer Ends Friday at 10am Pacific Time.

-75% \$29.99 \$7.49

New Releases Featured New Releases

My apps

Shop

Games

Family

Editors' Choice



Fight for 1st place in a new Heroic Race



Make your way through 6 new territories



ZOO TYCOON

Account

Redeem

Send gift

Add credit

My wishlist

My Play activity

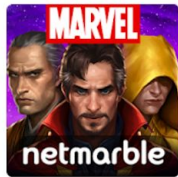
Parent Guide

New + Updated Games

See more



NBA LIVE Mobile Basketball
ELECTRONIC ARTS



MARVEL Future Fight
Netmarble Games



Clash Royale
Supercell



FINAL FANTASY BRAVE EXVIUS
SQUARE ENIX Co.,Ltd.



PinOut
Mediocre



CSI: Hidden Crimes
Ubisoft Entertainment

29,292 ONLINE PLAYING 110,858 FREE GAMES!
KONGREGATE



WOULD PLAY AGAIN


Kongregate's 10th Anniversary Event



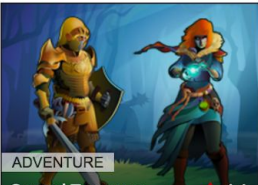
What is it?!



HOT NEW GAMES [\(see all\)](#)



RPG
Bit Heroes ★ 4.3



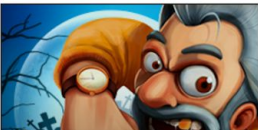
ADVENTURE
Sacred Treasure ★ 4.1



ANIME
Naruto Online ★ 4.0



SCREAM COLLECTOR



Medieval Shorts
"My New Best Friends"



Medieval Shorts
"My New Best Friends"



Here's a holiday offer worth celebrating.

fios

SPONSORED LISTING

Rift



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Twitch Prime Free loot every month, exclusive discount on new-release games, ad-free viewing, and loads more. [Start 30-day Free Trial](#)



NERF RIVAL

PRECISION BATTLING

SEE THE BLASTERS

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Worstbot (19)

RAZER

LATEST DONATOR: NZSteven: 16,484

TOP DONATOR: NZSteven: 16,484

LATEST SUBSCRIBER: LayCensor

SUB COUNT: 21 MONTHLY

Ladder Spilmoment

Overall Score: 66-55

ShamanCounter: 50

02:07 LIVE 177

Arcane Missiles

Deal 3 damage randomly split among all enemies.

Tempo Table

- 10. Redaction Throne
- 11. Arcane Blast
- 12. Arcane Missiles
- 13. Missa Wynn
- 14. Arcane Explosion
- 15. Blackwing Shaman
- 16. G.H. Gorehowl
- 17. Hearthfire
- 18. Sacrifice's Aggression
- 19. Arcane Infection
- 20. Annihilator
- 21. Argussten Torch
- 22. Frenzy
- 23. Deathball
- 24. Albatross Drake
- 25. Empowered Thrashman
- 26. Archmage Antonidas
- 27. Malygos

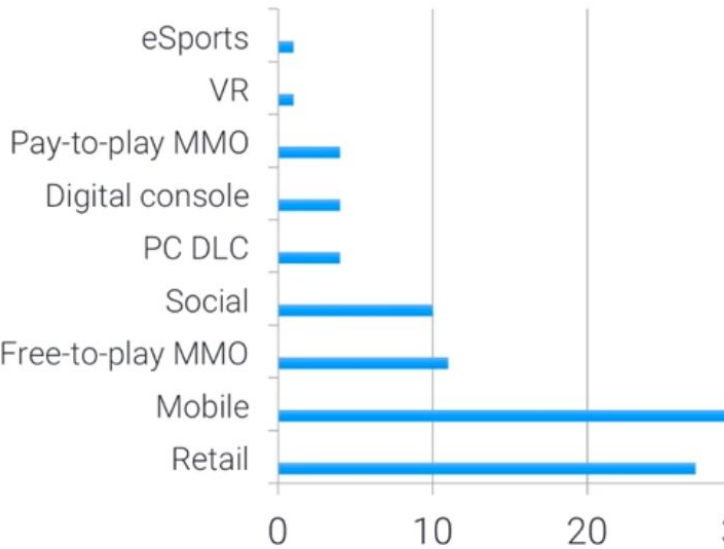
P4wnyhof
streaming Hearthstone: Heroes of Warcraft

P4wnyhof

The P4wnyhof? A happy place on Twitch to spend time with your friends and fellow viewers! P4wnyhof is having fun in computer games while interacting with the chat and community. Want to be part of it?

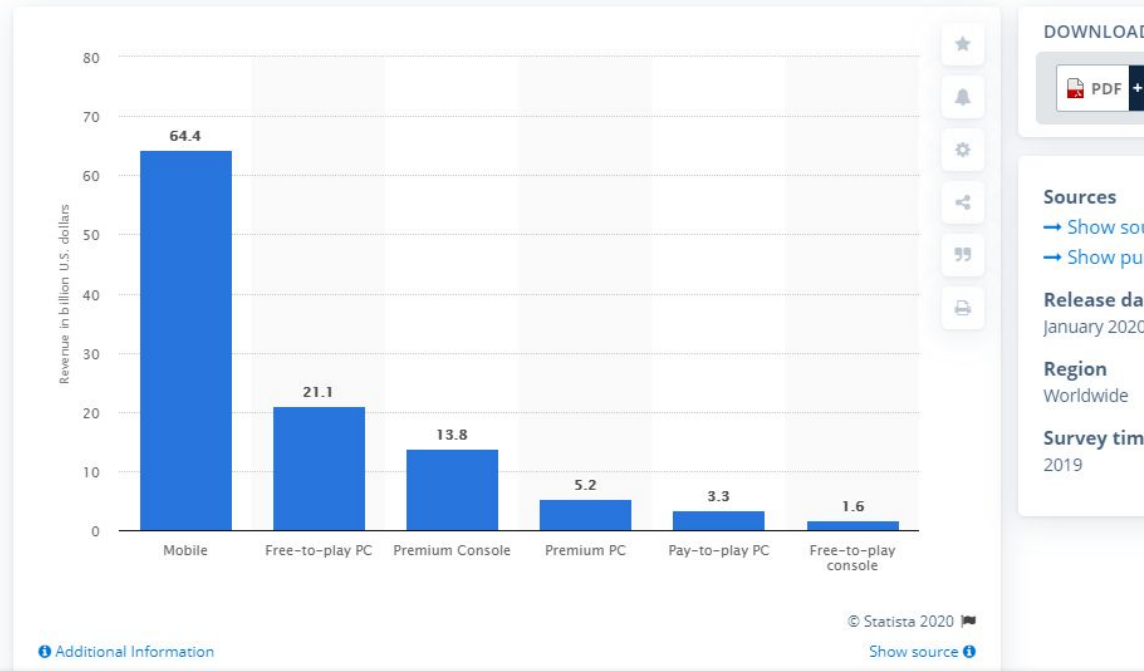
Just join, say hi and be welcome!

tribution of revenue l



Media & Advertising > Video Games & Gaming

Digital games industry revenue worldwide in 2019, by game category (in billion U.S. dollars)



DOWNLOAD



Sources

Show source

Show pub

Release date

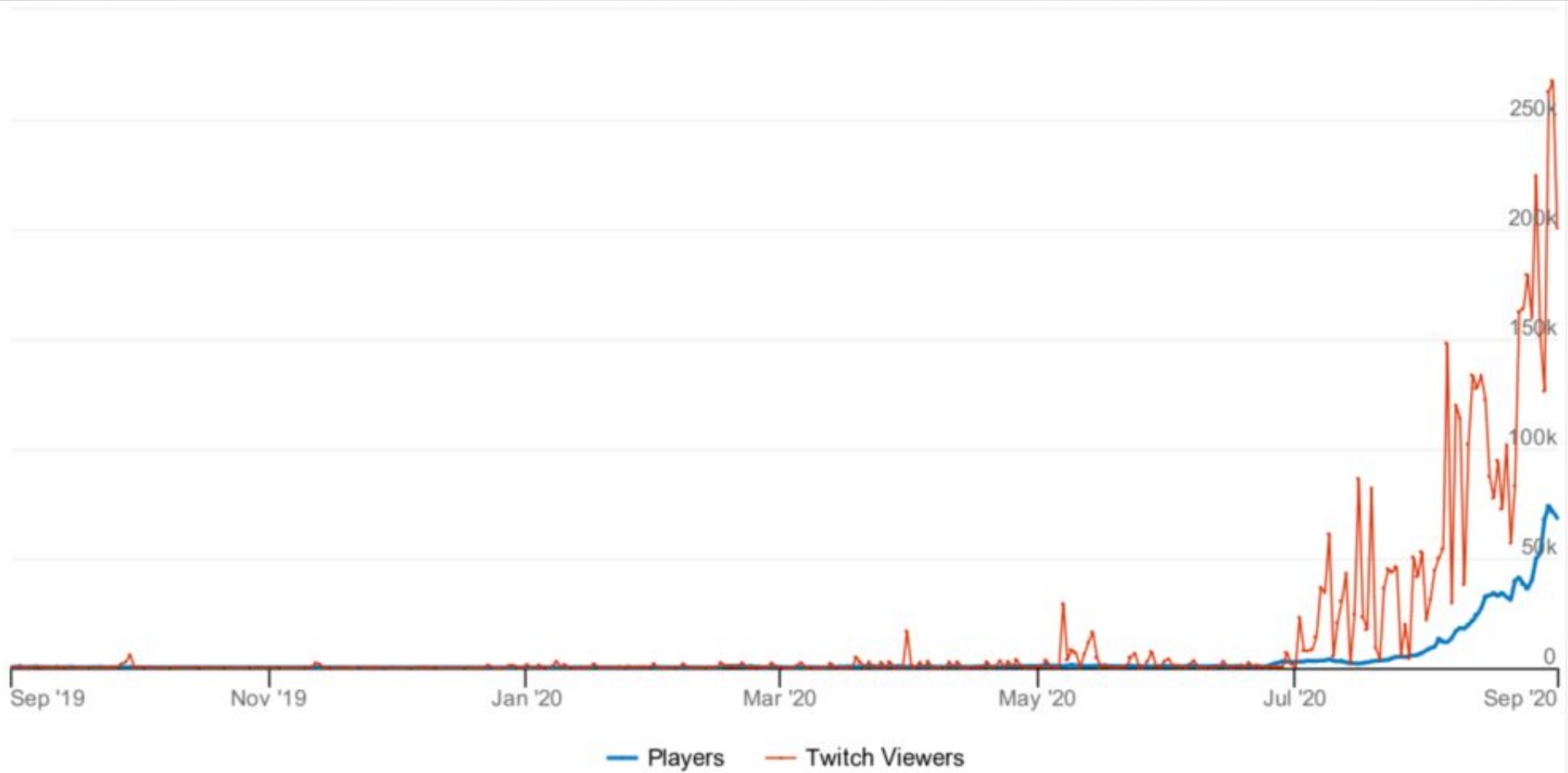
January 2020

Region

Worldwide

Survey time

2019



MONETIZATION RESEARCH



Concurrent Steam Users: **21,133,767** current **21,793,431** peak

Top games by current player count

CURRENT PLAYERS	PEAK TODAY	GAME
824,452	899,225	Counter-Strike: Global Offensive
549,673	594,360	Dota 2
224,927	361,540	Among Us
192,171	338,744	PLAYERUNKNOWN'S BATTLEGROUNDS
109,154	129,860	Rocket League
97,664	117,036	Tom Clancy's Rainbow Six Siege
84,180	102,404	Grand Theft Auto V
83,016	89,745	Path of Exile
80,218	82,655	Source SDK Base 2013 Multiplayer
74,545	77,901	Football Manager 2020
72,592	76,710	Team Fortress 2
67,647	89,105	Left 4 Dead 2
61,577	69,456	Warframe
61,043	61,043	Rust
58,538	58,538	Destiny 2
54,383	59,488	Fall Guys
50,438	52,369	ARK: Survival Evolved
46,666	48,597	Dead by Daylight
43,275	43,981	Sid Meier's Civilization VI
42,364	42,986	Crusader Kings III
38,293	47,835	Wallpaper Engine
34,094	34,094	Mafia: Definitive Edition
33,116	34,630	Hades
32,842	34,841	War Thunder
32,316	45,853	Monster Hunter: World

Steam Hardware & Software Survey

[Steam Hardware & Software Survey](#)

Steam Stats

[Steam Download Stats](#)






[Steam Support Stats](#)

Top Apps on iOS, United States, Overall, September 24, 2020







Stay ahead of the market with App Annie Intelligence. Monitor the top apps across countries, categories and platforms.

Market **iOS** Country **United States** Category **Overall** Device **iPhone**







Free

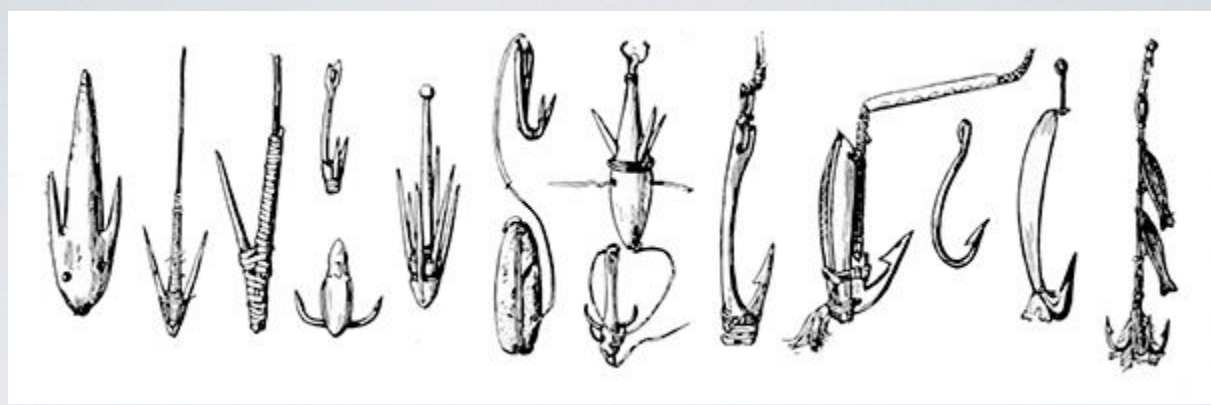
1		Among Us! InnerSloth LLC
2		Widgetsmith Cross Forward Consulting, LLC
3		Color Widgets MM Apps, Inc.
4		ZOOM Cloud Meetings Zoom
5		Acrylic Nails! Crazy Labs
6		Photo Widget : Simple Hyoungbin Kook

Paid

1		Minecraft Mojang
2		Universe in a Nutshell in a nutshell - kurzgesagt GmbH
3		Procreate Pocket Savage Interactive Pty Ltd
4		HotSchedules HotSchedules
5		Heads Up! - Trivia on the go Warner Bros.
6		Geometry Dash RobTop Games AB

Grossing

1		YouTube: Watch, Listen, Str... Google LLC
2		Tinder - Dating & Make Fri... Tinder Inc.
3		Disney+ Disney
4		Roblox Roblox Corporation
5		Candy Crush Saga King
6		Pokémon GO Niantic, Inc.



LAB TIME



Lab, Part I: GROW A GAME

- 1) pick one of each color card
 - green = verbs (actions)
 - yellow = challenges (issues)
 - pink = atmosphere (games)
 - blue = values (goals)
- 2) come up with a game concept (15 minutes)
- 3) write it down (& draw it for extra credit?) (10 minutes)
- 4) turn it into an elevator pitch - 1-2 sentences (5 minutes)
- 5) post to OpenLab!

Lab, Part II:
SPEED DATING
(or maybe just one blind date)

ONCE YOU HAVE YOUR CONCEPT...

- 1) form pairs (auto-breakout-rooms probably)
- 2) share pitches! (3 minutes a piece).
- 3) come up with a mashup of two ideas (5 minutes).
- 4) post to OpenLab (one post per team is fine)
- 5) find another partner, repeat if time allows
-
- 6) review all mashed-up ideas, and pick one to commit to for HW
- 7) develop into a **concept document for HW by Next Friday**

CONCEPT DOCUMENT
GAME DESIGN DOCUMENT
WORLD BUILDING DOCUMENT
TECHNOLOGY DOCUMENT

HOMWORK CLARIFICATION

1) By **3.5** (next Friday), Game Journal & Reading Response (like normal)

Games: NetHack, FTL, Slay the Spire, Hades

Reading: Macklin & Sharp Ch. 6

2) By **3.5** (next Friday), Post a **CONCEPT DOC** to OpenLab:

<https://drive.google.com/file/d/1-yiF2Pq-OgjaTXsMAQblckoDzGINz26O/view>

3) By **3.12** (Friday after), Post a Game Design Doc to OpenLab

4) By **3.19** (3 Fridays), Post Final GDD to OpenLab
(also final date for all Game Journal & Reading Responses)