

AMAKUNI White Paper: Game Design, Formula and NFT Stats.

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<https://amakuni.com>
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Overview

AMAKUNI is an On-Chain Idle Play-To-Earn Role Playing Game set in the broken world of AEPIRAN. You will command a group of KUNI SARUs to fight off the forces of evils and rebuild the world

In-game Assets

SARU NFTS (BEP-721)

Saru NFTs are playable characters you can purchase or rent from our marketplace. Each Saru NFT is composed of 6 parts: Headgear, Eyewear, Body, Hands, Hair style, Weapon. The rarity and stats of each Saru NFT is depend on the rarity and stats of each individual part. See [Appendix A](#).

Distribution

Total Supply	10,000
Foundation	500
Sale	9,500

Item NFTS (BEP-721)

All Item in AMAKUNI are craftable using materials harvested from the game. Player can use their items to improve their Saru stats or sell them on marketplace. Stats of each Item are the result of the materials used for Crafting. The more materials used the strong the Item will be.

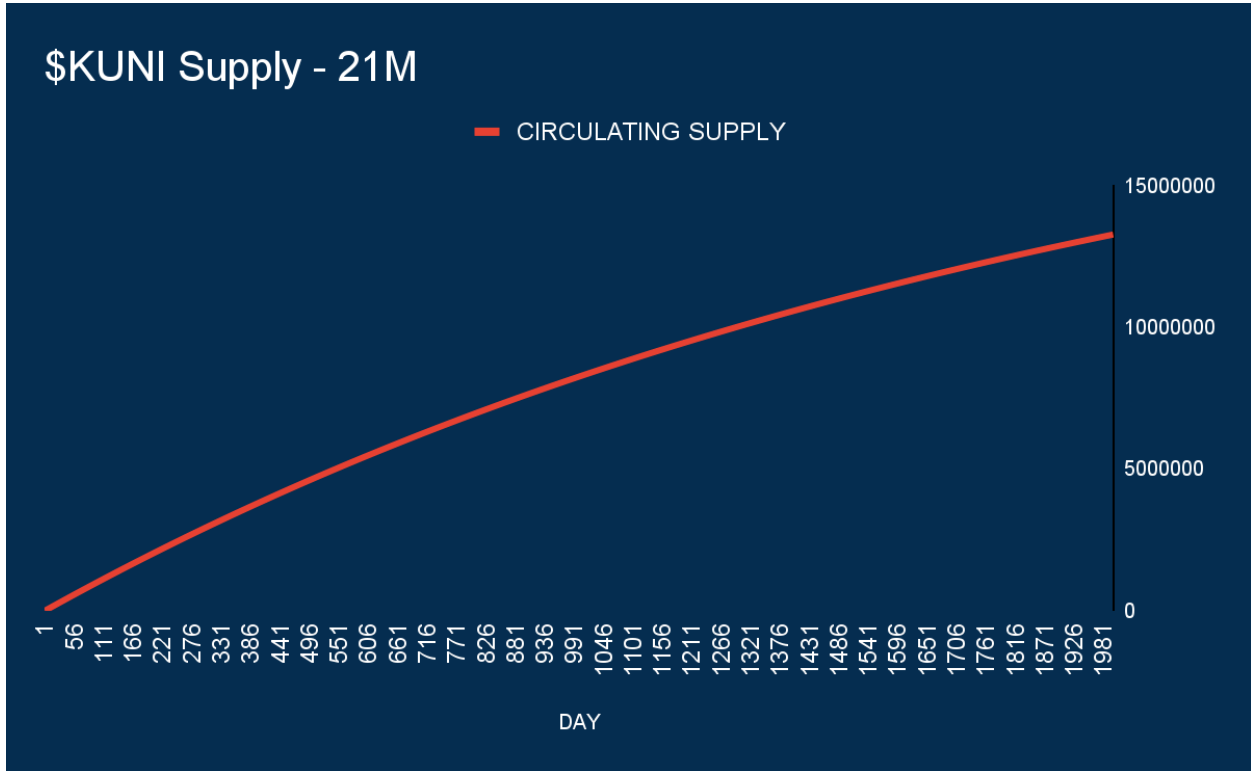
The total number of Item NFTs are varies and depends on the material supply cap. See [Material \(BEP-20\)](#) for more information.

\$KUNI (BEP-20)

Supply

The total supply of \$KUNI is hardcapped at 21 Million tokens. The amount of token can be minted at any moment is calculated using this formular:

$$supply = (total - circulating) * k$$



Distribution

100% of %KUNI Supply is allocated for players. \$KUNI Token is distributed to individual game according to the amount of gas fee spent. The more fee a game spent the more \$KUNI that game receives.

Materials (BEP-20)

There are four crafting materials in AMAKUNI: Ore, Cotton, Stone and Lumber. Material supplies are determined by the following formula:

$$supply_{material} = 25\% * supply_{\$KUNI}$$

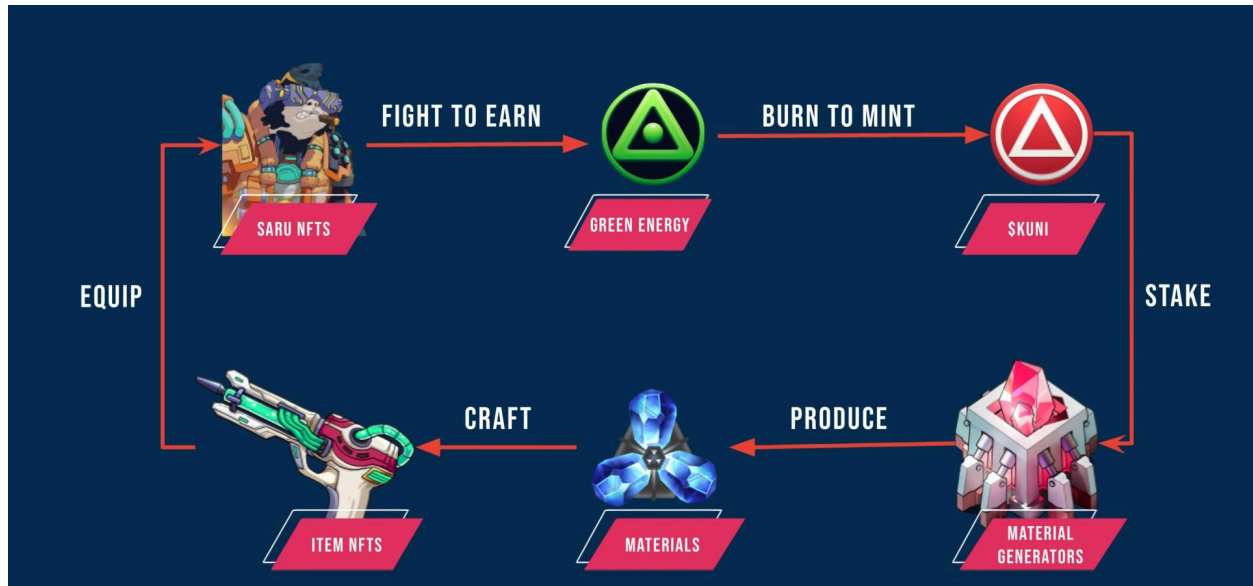
Materials are distributed via in-game \$KUNI and SARU NFTs staking.

Green Energy (BEP-20)

Green Energy (\$GE) is the battle reward players receive after each battle. \$GE is used to increase Hashing Power(HP) of \$KUNI Miner building. The more Hashing Power(HP) a player has, the more \$KUNI he/she receives.

\$GE is distributed via battle and referral reward

Core Loop



Gameplay Functions

Battle

This is the main gameplay of AMAKUNI. You progress from stage to stage, with a gradually increasing difficulty and larger rewards.

Stage Combat Power

The combat power of the NIOHs that players have to beat is then calculated using player's current stage:

$$power = stage^2$$

Result Calculation

In AMAKUNI, stats are divided into 5 main types:

- **SLASH:** Attack & Defend with/against slashing weapon (sword, machete, ..)
- **HEAVY:** Attack & Defend with/against blunt weapons (hammer, mace, ...)
- **STRIKE:** Attack & Defend with/against pointed weapons (spear, lance, ...)
- **TECH:** Attack & Defend with/against tech weapons (gun, grenade,...)
- **MAGIC:** Attack & Defend with/against magical weapons.

Both SARU and NIOH share this same stat structure. So to calculate the result of a battle we first need to calculate the Advantage Point (AP) of each type

$$AP_{type} = ATK_{type} * (100 / (100 + DEF_{type}))$$

We do this for each of the types of stats for all the SARU and NIOH involved in the battle.

$$AP_{Saru} = SUM(AP)$$

$$AP_{Nioh} = SUM(AP)$$

Then we use both APs to calculate the winning chance for each side

$$W_{Saru} = AP_{Saru} / (AP_{Saru} + AP_{Nioh})$$

$$W_{Nioh} = AP_{Nioh} / (AP_{Saru} + AP_{Nioh})$$

Then our smart contract use these percentages to determine the result of this battle.

Reward \$GE Calculation

\$GE rewards are consisted of Base Reward (RW) and Bonus Reward (BW). Base reward is determined by the result of the battle as following:

$$RW_{won} = 10 * stage$$

$$RW_{lost} = stage + NUM(NFT_{Saru}) + NUM(NFT_{Item})$$

Bonus Reward (BW) are referral reward splitted between referrer and referee base on the referrer's defined Rate (R):

$$BW_{referee} = R * (RW * 0.5)$$

$$BW_{referrer} = (1 - R) * (RW * 0.5)$$

The total \$GE Reward is the sum of base and bonus reward minus the NFT Rental Fee (F) (If applicable):

$$\$GE = RW + BW_{referee} - F$$

For more information on NFT Rental please refer to [NFT Fast Loan](#)

Battle Bonus

Battle Bonus (BB) is a boost applied directly on the total battle power of your Saru Team. Each time you fight, your BB will increase and BB is capped at 2.

BB is calculated as following:

$$BB_{new} = BB_{current} + (BB_{max} - BB_{current}) * K$$

With $K = 0.001$

Mining \$KUNI

\$KUNI can be mined using your in-game \$KUNI Miner Building. \$KUNI will be allocated to player proportionally to your Hashing Power(HP) vs total Hashing Power of the all players:

$$Ratio = \frac{HP_{player}}{HP_{total}}$$

$$\$KUNI = Supply * Ratio$$

To increase your HP, you will need to burn \$GE.

$$1 \$GE = 1 HP$$

\$KUNI will be allocated for as long as your HP is larger than 0. When you decide to claim your \$KUNI back to your wallet, your HP will be reseted to 0, and mining will stop.

Materials Production

There are 3 factor affected your production speed:

- The amount of staked \$KUNI.
- The production efficiency(E) of staked SARU NFTs. See [Appendix A](#).
- The continent a player's wallet is designated to. There are four different continents, each with different bonus/penalty for each material (M). See [Appendix B](#).

The final Production Speed(P) can be calculated using the following formula:

$$P = (1 + E_{material}) * \$KUNI_{staked} * M$$

Crafting

You can combine different materials to create in-game items. Stats of Crafted Item are calculated using this formula:

$$Stat_{Item} = SUM(Stat_{Material})$$

Before crafting you select the type of the Items they want to craft; Weapon or Armor; then the Item Category (Headgear, Eyegear, Body Armor, Gloves) is determined by the largest stat.

Material Cap

There is a minimum and maximum amount of material can be used per craft. Every time you craft you will increase the minimum by 1 and maximum amount by 2.

NFT Fast Loan

Both Saru and Item NFTs can be rented out for other players. NFT Owners can set the Rental Fee Percentage(P) when creating Loan Offer. Loan Offer can be cancelled anytime and NFT Owners receive 100% of the Fee (F) at the end of every Battle. The calculation is as of following:

$$F = (RW / (NUM(NFT_{Saru}) + NUM(NFT_{Item}))) * P$$

Appendices

Appendix A: Saru NFT Parts

Name	Count	%	Type	BATTLE POWER						PRODUCTION EFFICIENCY			
				SLASH	HEAVY	STRIKE	TECH	MAGIC	TOTAL	ORE	STONE	WOOD	FIBER
Tactical helmet	200	2.00%	Headgear	15	5	10	20	0	50	0.3	0.1	0.2	0.4
Kasa	1029	10.29%	Headgear	2	1	3	0	4	10	0.2	0.1	0.3	0
Demon Skull	306	3.06%	Headgear	10	3	10	0	10	33	0.3	0.1	0.3	0
Punk Helmet	264	2.64%	Headgear	2	2	11	19	4	38	0.05	0.05	0.3	0.5
Soft Hat	242	2.42%	Headgear	4	0	4	17	17	41	0.1	0	0.1	0.4
Kabuto	257	2.57%	Headgear	16	10	12	0	2	39	0.4	0.25	0.3	0
Galea	263	2.63%	Headgear	8	15	8	0	8	38	0.2	0.4	0.2	0
Hair clips	9	0.09%	Headgear	11	0	11	39	50	111	0.1	0	0.1	0.35
Space Helmet	1507	15.07%	Headgear	1	1	1	4	0	7	0.1	0.15	0.2	0.55
Heaume	500	5.00%	Headgear	4	3	8	1	4	20	0.2	0.15	0.4	0.05
Stetson	428	4.28%	Headgear	5	1	5	7	6	23	0.2	0.05	0.2	0.3
Gas mask	101	1.01%	Headgear	5	5	30	30	30	99	0.05	0.05	0.3	0.3
Invisible Hat	4889	48.89%	Headgear	0	0	0	0	0	2	0.05	0.05	0.05	0.05
Tatical Vision	1061	10.61%	Eyesgear	3	1	2	4	0	9	0.3	0.1	0.2	0.4
Karma Sensor	814	8.14%	Eyesgear	2	1	4	0	5	12	0.2	0.1	0.3	0
Bloodshot	830	8.30%	Eyesgear	4	1	4	0	4	12	0.3	0.1	0.3	0
DJ Smart Glass	619	6.19%	Eyesgear	1	1	5	8	2	16	0.05	0.05	0.3	0.5
Night Vision	617	6.17%	Eyesgear	2	0	2	6	6	16	0.1	0	0.1	0.4
Power Sensors	569	5.69%	Eyesgear	7	4	5	0	1	18	0.4	0.25	0.3	0
Fear Sensors	768	7.68%	Eyesgear	3	5	3	0	3	13	0.2	0.4	0.2	0
Eye Patch	234	2.34%	Eyesgear	4	0	4	15	19	43	0.1	0	0.1	0.35
Ore detector	437	4.37%	Eyesgear	2	3	5	13	0	23	0.1	0.15	0.2	0.55
Threat Sensor	907	9.07%	Eyesgear	2	2	4	1	2	11	0.2	0.15	0.4	0.05
Sand Google	458	4.58%	Eyesgear	4	1	4	7	5	22	0.2	0.05	0.2	0.3
Holy Lenses	732	7.32%	Eyesgear	1	1	4	4	4	14	0.05	0.05	0.3	0.3
Invisible Shade	1999	19.99%	Eyesgear	0	0	0	0	0	5	0.05	0.05	0.05	0.05
Tactical Body Armor	1251	12.51%	Body	6	0	0	10	0	16	0.4	0	0	0.6
Vegeterian	118	1.18%	Body	51	0	0	0	119	169	0.3	0	0	0
Hunter Armor	1132	11.32%	Body	7	0	5	0	5	18	0.4	0	0.3	0
Speakers Suit	1196	11.96%	Body	0	0	0	11	6	17	0	0	0	0.65
Protective Uniform	1305	13.05%	Body	0	8	0	8	0	15	0	0.5	0	0.5
Karuta	1377	13.77%	Body	9	0	5	0	0	15	0.65	0	0.35	0

Lorica Lamminata	536	5.36%	Body	15	22	0	0	0	37	0.4	0.6	0	0
Dragon Suit	45	0.45%	Body	0	0	122	100	0	222	0	0	0.55	0.45
Space Suit	1200	12.00%	Body	0	7	0	10	0	17	0	0.4	0	0.6
Mini Reactor Armor	718	7.18%	Body	0	0	11	17	0	28	0	0	0.4	0.6
Ranger Gears	880	8.80%	Body	0	0	16	7	0	23	0	0	0.7	0.3
Vestment	190	1.90%	Body	0	0	0	32	74	105	0	0	0	0.3
Dragon Lance	557	5.57%	Weapon	9	0	81	0	0	90	0.1	0	0.9	0
Fighting Wrench	1050	10.50%	Weapon	0	38	0	10	0	48	0	0.8	0	0.2
Jarnbjorn	1472	14.72%	Weapon	0	34	0	0	0	34	0	1	0	0
Peacemaker	112	1.12%	Weapon	0	0	89	357	0	446	0	0	0.2	0.8
Katana	503	5.03%	Weapon	99	0	0	0	0	99	1	0	0	0
Elemental Shotgun	1214	12.14%	Weapon	0	0	4	8	29	41	0	0	0.1	0.2
Piano Sword	22	0.22%	Weapon	295	0	0	295	0	591	0.5	0	0	0.5
Order Keeper	1222	12.22%	Weapon	0	37	0	4	0	41	0	0.9	0	0.1
Elemental Saber	1338	13.38%	Weapon	7	0	0	4	26	37	0.2	0	0	0.1
Elemental Gun	1245	12.45%	Weapon	0	0	0	8	32	40	0	0	0	0.2
Lotus Seed	287	2.87%	Weapon	0	17	0	157	0	174	0	0.1	0	0.9
Dao	978	9.78%	Weapon	46	0	0	0	5	51	0.9	0	0	0
Dragon Claws	502	5.02%	Hand	4	8	4	0	4	20	0.2	0.4	0.2	0
Protective Gloves	1292	12.92%	Hand	1	0	1	3	3	8	0.1	0	0.1	0.4
Hunter gloves	1199	11.99%	Hand	3	1	3	0	3	8	0.3	0.1	0.3	0
Holy hands	237	2.37%	Hand	2	2	13	13	13	42	0.05	0.05	0.3	0.3
Yukake	1303	13.03%	Hand	3	2	2	0	0	8	0.4	0.25	0.3	0
Ranger Gloves	884	8.84%	Hand	2	1	2	3	3	11	0.2	0.05	0.2	0.3
Rhythm Gloves	1262	12.62%	Hand	0	0	2	4	1	8	0.05	0.05	0.3	0.5
Tactical Gloves	1234	12.34%	Hand	2	1	2	3	0	8	0.3	0.1	0.2	0.4
Power Gloves	729	7.29%	Hand	3	2	5	1	3	14	0.2	0.15	0.4	0.05
Space Gloves	1171	11.71%	Hand	1	1	2	5	0	9	0.1	0.15	0.2	0.55
Buddist Palm	118	1.18%	Hand	17	8	25	0	34	85	0.2	0.1	0.3	0
Quick Hand	69	0.69%	Hand	14	0	14	51	65	145	0.1	0	0.1	0.35
blue	818	8.18%	Hair	0	0	12	0	0	12	0	0	1	0
charcoal	590	5.90%	Hair	0	17	0	0	0	17	0	1	0	0
Cotton White	12	0.12%	Hair	0	0	0	83	0	833	0	0	0	0.1
crimson	312	3.12%	Hair	0	0	0	32	0	32	0	0	0	1
gold	40	0.40%	Hair	0	50	0	38	38	250	0	0.2	0	0.15
indigo	927	9.27%	Hair	0	0	0	0	11	11	0	0	0	0
magenta	673	6.73%	Hair	0	15	0	0	0	15	0	1	0	0
metal	3371	33.71%	Hair	1	0	1	1	0	3	0.3	0	0.3	0.4

ocean	980	9.80%	Hair	10	0	0	0	0	10	1	0	0	0
rainbow	7	0.07%	Hair	50	50	50	50	50	1000	0.05	0.05	0.05	0.05
sapphire	703	7.03%	Hair	0	0	0	0	14	14	0	0	0	0
seafoam	864	8.64%	Hair	12	0	0	0	0	12	1	0	0	0
tangerine	703	7.03%	Hair	0	0	14	0	0	14	0	0	1	0

Appendix B: Material Stats & Continental Multipliers

Materials	Slash	Heavy	Strike	Tech	Magic
Lumber	0	0.15	0.75	0.1	0.1
Stone	0.1	0.75	0.15	0	0.1
Ore	0.75	0.1	0	0.15	0.1
Cotton	0.15	0	0.1	0.75	0.1

Continental Multiplier	Adimeke	Threara	Vorgaicy	Fism
Lumber	0.3	0.1	1	0.6
Stone	1	0.6	0.1	0.3
Ore	0.6	1	0.3	0.1
Cotton	0.1	0.3	0.6	1