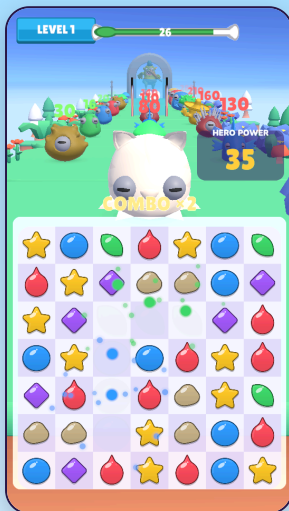




GAME DESIGN DOCUMENT · OCTOBER 2026

Brushfall

Charge it. Climb it. Paint it. A hybrid-casual puzzle game for portrait mobile and the web.



Charge



Climb



Restore



Reveal

2 Overview and the core loop

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4 Stage 2: the climb

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By Umut Eren Demirci. Built in Unity 6 (C#) with an AI coding assistant (Claude); design, tuning and every decision in this document are mine. Numbers come from the game's code and from bots that play the shipped rules at human speed.

One chain, four kinds of fun

Hybrid-casual players already know each part. Brushfall chains them so every stage spends what the last one earned.

Charge

30 s of match-3 builds the hero's **power**

Climb

eat smaller monsters, bank their **paint** by colour

Restore

paint becomes buckets that drain a **painting** of sand

Reveal

name the masterpiece; it joins the **gallery**

The concept

A storm of grey sand has buried the world's great paintings. A small paint spirit climbs through the creatures of the sand, eating every one weaker than itself, to bring back the colours each masterpiece needs. The power-climb ad everyone has seen (a hero eats a 12, a 40, faces a 500) is the climb, played for real; the match-3 board decides how strong the hero starts; the sand-jam restoration is where the paint goes.

Audience and positioning

Players	Casual puzzle players (match-3, sand and colour sorts) and the wide audience that clicks power-climb ads but finds no real game behind them.
Platform	Portrait phones (Android APK) and the mobile web (itch.io). Unity 6, URP, 60 fps target.
Session	About 2 minutes a level; a restoration every third level; a chapter (12 levels and a finale) in roughly 30 minutes.
Parents	Royal Match (board feel), Count Masters / Mob Control (the climb), sand and colour jams (the fill), Project Makeover (the reveal and collection).

Design pillars

1. One currency per step

Board → power → paint → painting → gallery. A lazy charge is felt on the climb; a timid climb is felt in the restoration.

2. The board decides how bold you can be

Every climb row offers a safe lane, a rich lane and a danger; a strong charge opens the rich lane.

3. Satisfying to watch

Bites chomp, sparks fly, sand pours into buckets, a brush sweeps the last grains away.

4. An ad that is the game

Every ad frame is captured from the build; the first minute of play keeps the ad's promise.

A level, second by second

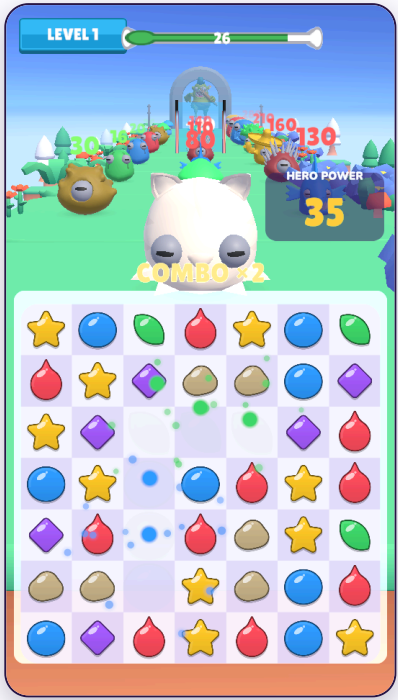
TIME	STAGE	WHAT THE PLAYER DOES	WHAT IT PRODUCES
0–30 s	Charge	Swipes matches on a 7×7 board against a timer	Power (and maybe a shield or a magnet)
30–31 s	Turn	The hero turns from the camera to the track: one continuous shot	—
31–90 s	Climb	Swipes lanes; eats the green numbers, dodges the red ones; passes gates	Paint by colour; stars
90 s	Guardian	The hero meets the guardian: bigger wins (slow motion if it's close)	Win, paint jackpot
every 3rd level	Restoration	Places coloured buckets under funnels; swaps them as the sand shifts	A quarter of a painting

The charge

Thirty seconds on a 7×7 board of six tiles: the five paints and a clump of grey sand. Matches pour power into the hero standing above it.

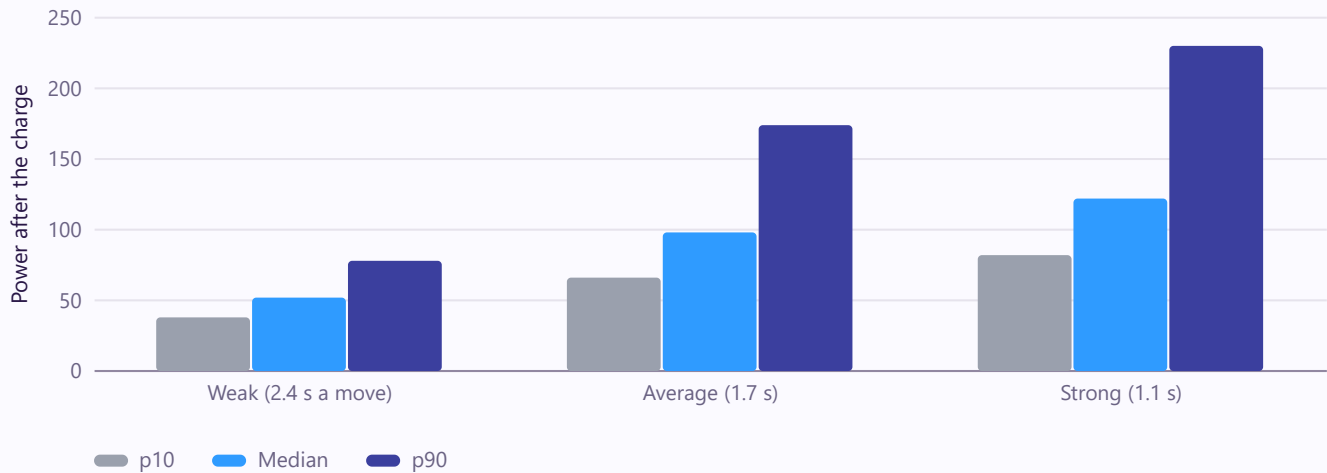
RULE	VALUE	WHY
Start power	10	A hero that is never zero
Per tile cleared	+1.1	A 3-match is worth a little; cascades add up
Per special made	+8	Rewards making specials, not only clearing
Special + special combo	×1.4 on the whole charge	The big moment a strong player chases
Star special	a shield (up to 2)	Survives one bigger enemy on the climb
Colour bomb	a magnet (3 pulls)	Pulls in up to three small enemies from the next lanes

The board is Arcana Match's tested match-3 core (matches, cascades, five special shapes, special combos), with six tiles: the five paints and the grey sand. As tiles clear, sparks of their colour fly into the hero, who swells; cascades call out **COMBO / GREAT / AMAZING** ×N.



Sparks fly from the cleared tiles into the hero

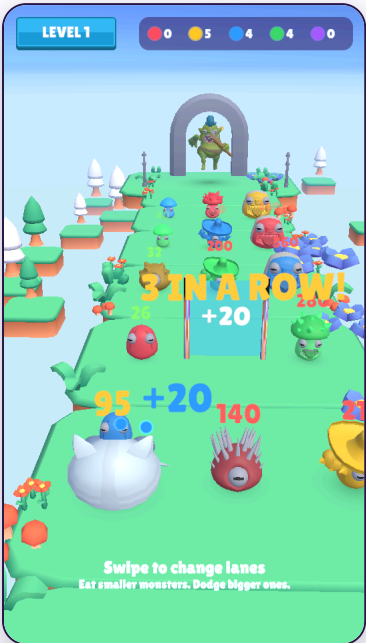
Power by player (300 charges each, bots at human speed)



Tuned twice. In phase 5 a fast bot reached ~200 power against climbs built for 50–140, so the power per tile came down. Then a playtest found the board too generous: with five tiles, 73% of moves cascaded and a dozen matches were always on offer. A sixth tile (grey sand, no paint) and a refill that mostly avoids landing ready-made lines brought that to 42%, and the rules above were retuned so the medians stay 52 / 98 / 122 (shields in 6% / 20% / 44% of charges).

The climb

The hero walks up three lanes; whatever stands in its lane is resolved as it arrives.



Green numbers can be eaten, red ones eat you

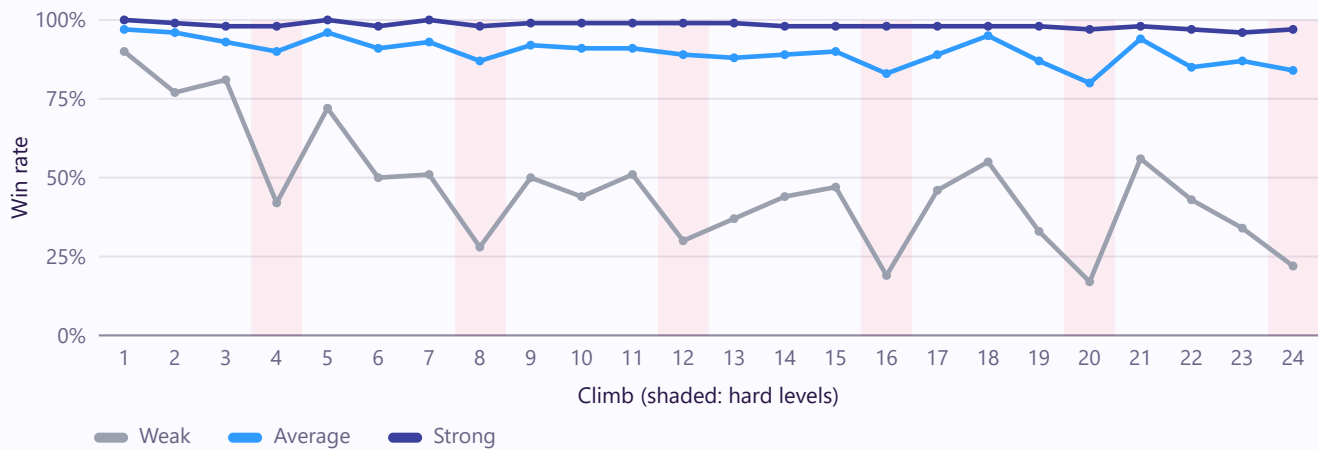
CELL	WHAT HAPPENS
Smaller monster	Eaten: its power is added, up to 30% of the hero's own; it drops $\sqrt{\text{power}}$ paint in its colour
Bigger monster	The hero is eaten (a shield takes the hit instead). Revive once for an ad
Magnet	Pulls in up to three side-lane enemies under half the hero's power, then it's spent
+N, $\times N$ gates	Power up (glass gates, the ad mechanic, used honestly)
-N gate	Power down, never below 1
Guardian	At the arch: higher power wins and pays a paint jackpot over all five colours

Rows are choices. Each row offers neighbouring lanes with a safe snack, a rich meal and a danger; you can move one lane per row. **Paint is $\sqrt{\text{power}}$** , so big monsters pay more but a weak board can still finish every painting.

Guardians are set by a careful weak player's route, not the perfect one (which can reach a far $\times 2$ gate no careful player takes). Every chapter's 4th and 8th climb is a **hard level** sized for an average board.

Stars: 1 for a win, 2 for 85% of the paint a 90-power board can bank, 3 for 90% of a 140 board's.

Win rate by climb (300 climbs per player per level)



Reading it: weak players win 33–90% of normal climbs and 17–42% of hard ones, which they replay; average players win 80–97%. Stars average about 2.2 for an average player and 1.0 for a weak one.

Tuned twice. A playtest caught the magnet lasting the whole climb; it now has three pulls. Then the numbers showed a strong hero nearly doubling every row on the rich lane and meeting the guardian with ~ 22 times its power. A meal now adds at most 30% of the hero's power and $\times 2$ gates left the rich lane: 6 times at the median. The cost, accepted: weak players win 10–20 points less on normal climbs (was 53–95%).

The restoration

A quarter of a painting turned to sand. Put a coloured bucket under a funnel and its paint pours out of the picture.

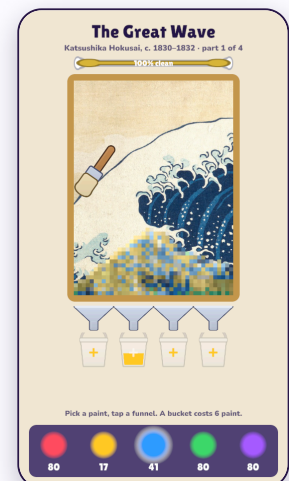
- **The sand is the painting:** 40×54 grains. Each quarter's own main colours (up to four groups) each take a paint, so a quarter is three or four paints; only paper-white highlights and black lines are **dust**, which pours into any bucket. Grains keep the painting's tones, tinted toward their paint, and the pouring hisses louder the more drains.
- **Four funnels.** A bucket of a paint catches that paint (and dust) from the bottom four rows of its funnel, slipping it through a thin layer of other grains; a thicker band of another paint blocks it. The sand above slumps into the gaps.
- **Buckets cost paint** from the climbs: 6, 10 and 15 a bucket in chapters 1–3. A full bucket (120 grains) is carried off; one sent away early refunds its unused share, so swapping is never a trap.
- **Mixing:** green from yellow and blue, purple from red and blue.
- **80% drained wins:** a brush sweeps the last of the sand away and the painting is revealed.
- **The painting keeps its progress.** Out of paint, the drained sand stays drained; climb once more and carry on.

Redesigned after the first playable: the first version was sand bands with stone plugs. It read as a sorting puzzle unrelated to the art. The painting itself as sand, drained into buckets and swept by a brush, is the version you see here: it is the ad's third hook and the reason to collect.

Then a playtest found it janky: each grain took its own nearest colour, so the brushwork became speckle (181 patches in one quarter) and a bucket caught a few grains before one of another paint jammed it: 142 buckets a quarter at about 14 grains each. The sand is now smoothed into patches (none under 120 grains, at least three paints) and a bucket reaches four rows up: **24 buckets at about 74 grains**, with the same paint spent.



Sand pouring into the buckets



The brush sweeps the rest

Every quarter, played by the bot with plenty of paint

QUARTER	BUCKET PRICE	BUCKETS	PAINT	BY COLOUR
The Great Wave 1	6	20	104	69 35
The Great Wave 2	6	22	97	21 65 11
The Great Wave 3	6	22	103	19 73 11
The Great Wave 4	6	30	102	6 34 29 33
Wheat Field with Cypressess 1	10	18	161	59 102
Wheat Field with Cypressess 2	10	25	172	43 93 21 15
Wheat Field with Cypressess 3	10	34	173	35 82 21 35
Wheat Field with Cypressess 4	10	31	179	37 29 75 38
The Milkmaid 1	15	21	249	41 48 160
The Milkmaid 2	15	20	241	52 174 15
The Milkmaid 3	15	20	257	116 15 122 4
The Milkmaid 4	15	29	252	83 61 86 22

Chapters, the finale and the gallery

Three chapters, one masterpiece each: Hokusai's *The Great Wave*, Van Gogh's *Wheat Field with Cypresses* and Vermeer's *The Milkmaid*, all public domain from museum open-access collections.

LEVEL	1	2	3	4	5	6	7	8	9	10	11	12	FINALE
Kind	Climb	Climb	Part 1	Climb	Climb	Part 2	Climb	Climb	Part 3	Climb	Climb	Part 4	Reveal
Note					hard						hard		no fail

The finale: name the painting

The restored painting fills the screen and its name (or its painter's) is spelled from letter tiles. A wrong tile shakes; a hint fills the next letter. **It cannot be failed:** it's the payoff, not a gate. Every six stars earned in the chapter's climbs is a free hint. Then the painting's story (two lines) and into the gallery.

The gallery

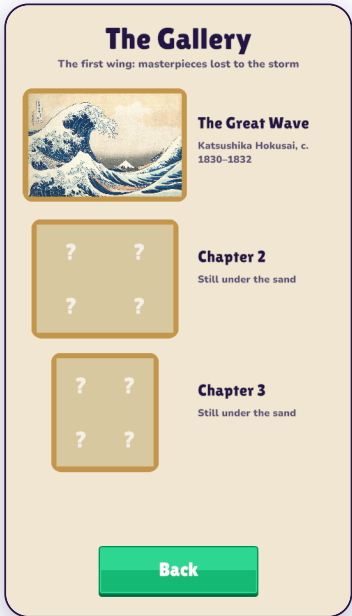
One gilt frame per chapter. Quarters not yet restored are still under sand; a painting is named once its finale is done. It is the collection players come back for, and the frame for future wings (Renaissance, Impressionism).

Answers and fairness

Only famous works; some reveals ask for the painter (*Van Gogh*) so the word step stays fair after the obvious ones. Titles live in data, ready for localised names (*Mona Lisa* / *La Gioconda* / *La Joconde*).



The finale



The gallery

Why players come back

The daily painting

One quarter of one painting a day, the same for everyone (seeded by the date), restored with **its own box of buckets** rather than your paint. The box is what the bot needs $\times 1.3$ plus a spare of each paint used: the puzzle is spending it well. The first win of the day pays $(2 + \text{streak})$ buckets of the paint your next restoration needs most, and keeps the streak. Opens after level 3.

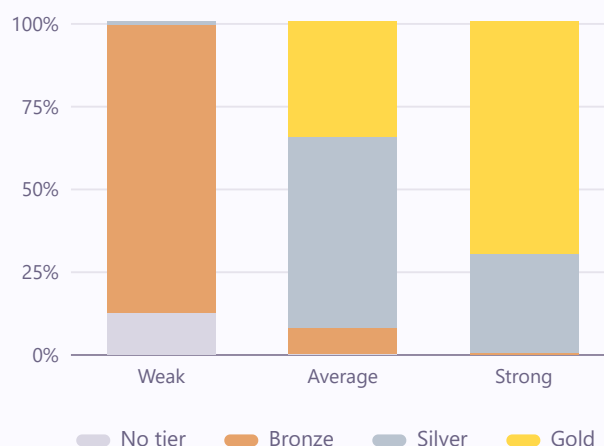
Hero skins

Eight Quaternius blobs the climb doesn't use as enemies, 300 to 2,500 paint. **They are the paint sink:** a skin is paid from your biggest piles, so it soaks up the colours the paintings don't need. The shop is a sheet under the hero, who tries each skin on. The eighth skin, Zib, is the Grand Climb's gold prize.

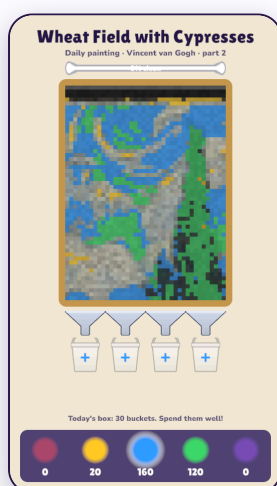
The weekend Grand Climb

Saturdays and Sundays: a 20-row climb, the same for everyone that weekend (generated from its date), with bronze, silver and gold lines; gold is beating the guardian. Three tries, two more for ads; each tier pays once a weekend.

Every row can be survived from every lane by a careful hero; the feasts beside the safe cells need a bigger board, so the charge decides how high you go. Best of three tries, 12 generated weekends:



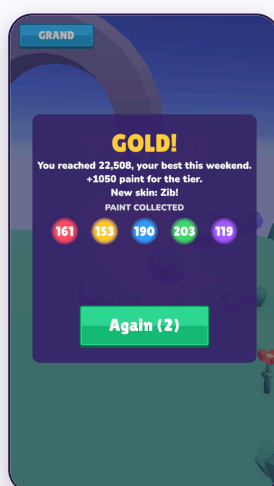
Fixed in the sim: the first generator let a weak board catch a strong one (flat gains add up) and sometimes left a row with no way through. Survivable rows and feasts sized near a 100-power hero fixed both: weak players now reach bronze ~90%, average players split silver and gold, strong players mostly take gold.



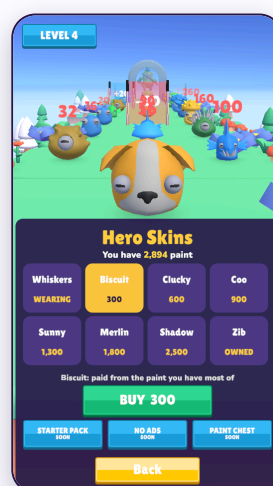
The daily's box



Grand Climb tier lines



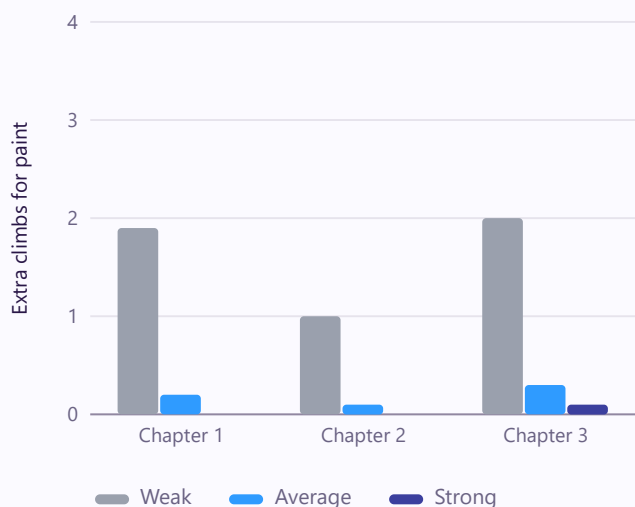
A gold finish



The skins shop

Paint in, paint out

Bots play whole chapters: climbs (a lost climb is replayed), then the four restorations; short of paint, they replay the last climb.



PLAYER	CH.	CLIMBS	EXTRA	EARNED	SPENT	LEFT
Weak	1	17.4	1.9	792	409	383
Weak	2	26.4	1.0	1185	686	499
Weak	3	28.5	2.0	1533	1017	516
Average	1	8.6	0.2	1241	405	836
Average	2	8.8	0.1	2043	686	1357
Average	3	9.3	0.3	2580	1010	1569
Strong	1	8.1	0.0	1500	405	1095
Strong	2	8.1	0.0	2339	685	1654
Strong	3	8.3	0.1	2967	1000	1967

The tuning story

Before: a bucket cost 5 everywhere and the climbs paid 5–10 times what the restorations needed, yet a weak player was 9 climbs short in chapter 2. The paint came in the wrong colours: the Wheat Field needs yellow, blue and green evenly, and the climbs dropped mostly green.

Three changes:

- each chapter's monsters drop the colours its painting needs;
- the bucket price rises by chapter (6 / 10 / 15), because the climbs pay more as the monsters grow;
- a restoration that runs out of paint **keeps the sand already drained**, so a short player climbs once more and carries on instead of paying twice.

After: weak players need 1.0–2.0 extra climbs a chapter, average players at most 0.3, strong players at most 0.1. The paint left over (mostly off-colours) is the stock the skins shop spends.

The workbook ([Brushfall_Balance_Economy.xlsx](#)) has every table behind this page, with live formulas: change a chapter's bucket price and the colour coverage and restoration costs update.

Targets met: an average player needs at most a third of an extra climb a chapter; a weak player at most about two; nobody hits a wall, because the painting keeps its progress.

Ads the player chooses, a few honest offers

Hybrid-casual earns mostly from ads, so the rewarded placements sit where a player wants them, and interstitials stay out of the way.

Rewarded ads (all optional, capped at 12 a day)

PLACEMENT	OFFERED WHEN	GIVES
Revive	Eaten by an enemy on the way up (never the guardian), once per climb	The monster is knocked away; walk on from the next row
Double paint	A won climb	The climb's paint again
Refill	A restoration runs out of paint, once per visit	3 buckets of the paint the painting needs most
Daily refill	The daily's box runs out, once per try	3 more buckets
Grand Climb try	No tries left this weekend (twice a weekend)	One more try

Interstitials

Only after a **won** climb, from level 8, every third climb at most, at least 3 minutes apart, never within 90 seconds of a rewarded ad, and never for players who bought the starter pack or ad removal. All of it lives in `AdPolicy` (pure C#, unit-tested).

In-app purchases

PRODUCT	CONTENTS	KIND
Starter pack	300 of every paint, the Shadow skin, no interstitials	One time
No ads	Removes interstitials (rewarded ads stay: they're the player's choice)	One time
Paint chest	200 of every paint	Repeatable

Behind interfaces

The game only talks to `IStoreService`, `IAdService` and `IAalytics`. This build ships placeholders (rewarded ads grant at once, the store reads "Soon", analytics writes a local log), so a real SDK drops in without touching gameplay.

What a purchase grants

Decided by `Purchases.Grant` in the core, not by the store SDK: one-time products can't be granted twice, and every grant is covered by a test.

Bright, chunky, readable at a glance

Art direction

- **The genre's look:** a floating grass track in a pale sky, chunky low-poly monsters, huge outlined numbers, glass gates, a boss under an arch. Bright, soft and shadowless (blob shadows only): cheap on phones and the web.
- **Five paints, always the same five colours** ● ● ● ● ●: tiles, monsters, counters and buckets, so "I matched blue" and "I ate blue" are one idea. Each tile also has its own **shape** (drop, star, blob, leaf, gem) for colour-blind players.
- **Numbers are the UI:** green when you can eat it, red when it would eat you.
- **One continuous shot:** the camera never cuts from the charge to the climb; it swings behind the hero as it turns.
- **Free assets, credited:** Quaternius Ultimate Monsters and Kenney kits (CC0), Lilita One and Nunito (OFL), the paintings from The Met and the Rijksmuseum. Monsters are recoloured per paint by rewriting their shared palette.

Feel

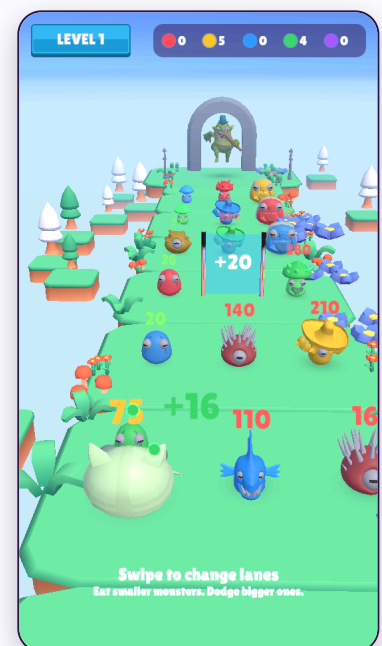
- Sparks fly from cleared tiles into the hero; combo callouts over the board.
- Bites chomp and gulp, higher in pitch with every row in a row ("3 IN A ROW!"); paint drops fly to the counters.
- Monsters notice the hero: edible ones flinch, bigger ones square up.
- A guardian beaten by under a quarter slows time: **SO CLOSE!**
- Sand lit like a pile, casting a shadow on the canvas; every pouring grain ticks; a brush swish and a fanfare.

Audio

Every Brushfall sound and both music loops are **synthesized in the editor** (nothing recorded or downloaded): chomps, gulps, gate chimes, sand ticks, a bucket bell, a brush swish, a fanfare; "Gallery Morning" (92 bpm) for home and restorations and "Paint Run" (124 bpm) for the charge and climb, crossfading with the screen.



SO CLOSE!: slow motion on a near win



A bite: sparks, splash, +N

Two seconds to understand, one thumb to play

Onboarding by design

- **Level 1 teaches itself:** green and red numbers, a swipe hint on the first two climbs, a guardian you can beat.
- **One new idea at a time:** gates from level 1, minus gates from level 3, the first restoration on level 3, the first hard climb on level 5.
- **Meta unlocks after the first restoration** (daily, Grand Climb), so new players see one loop first.
- **Nothing is lost for good:** a restoration keeps its sand; a lost climb only costs a retry.

Readability

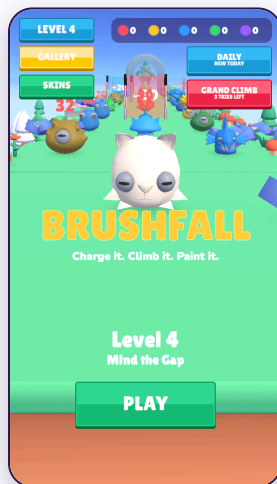
- Portrait, one thumb: swipe or tap either side of the hero to change lanes.
- Every number in Lilita One with a dark outline; numbers fade with distance so the horizon stays clean.
- Paint counters always in the top right, in the same order and colours as the board.
- Safe area respected on notched phones; the web template fits any screen and asks for portrait.

Screens

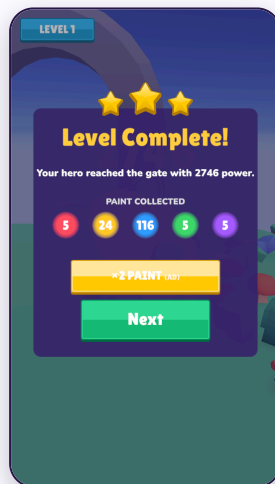
SCREEN	PURPOSE
Home	What's next (a climb, Restore 2/4, the finale), the wallet, Daily, Grand Climb, Skins, Gallery
Charge	Timer, hero power, perks; the board slides up under the hero
Climb	Paint counters, swipe hint, Grand Climb lines when in the event
Result	Stars, paint collected, the rewarded offer (revive, ×2 paint, +1 try)
Restoration	The framed painting, four funnels, the paint tray, progress
Finale, gallery, shop	The reveal, the collection, the skins

The first session (targets)

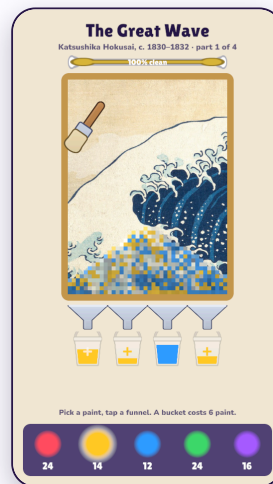
Level 1 in under 2 minutes; the first restoration by minute 6; the first painting named by about minute 30. The funnel is measured with the analytics events (Ad and KPI plan).



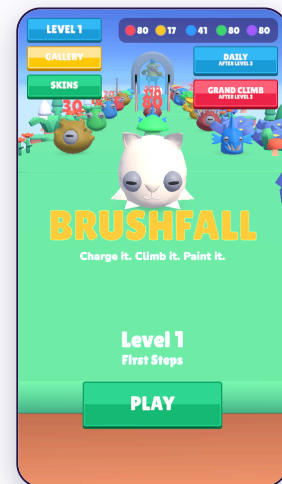
Home: next step and the meta



Result



Restoration finish



Title

Rules in pure C#, proven by bots

Architecture

- **Brushfall.Core** (no UnityEngine): the charge, climb, solver, sand and restoration, chapters, word reveal, the save profile, the daily painting, the Grand Climb generator, skins, purchases and the ad policy.
- **ArcanaMatch.Core**: the match-3 rules, reused from the author's earlier games with their tests.
- **Game layer**: MonoBehaviours only display, take input and animate; the whole scene is built from code.
- **Services**: a JSON save (written atomically, flushed to IndexedDB on the web), store, ads and analytics behind interfaces.

Testing and tools

- **136 EditMode tests** on the rules and the shipped data (every level winnable by the right board, every quarter restorable, every daily box enough, every Grand Climb survivable).
- **6 PlayMode tests** play the real scene with bots and save phone-shaped screenshots, including the ad storyboard.
- **Tools/sim**: the same core compiled as a console app; bots at human speed play thousands of charges, climbs, restorations, whole chapters and Grand Climbs, and write the CSVs behind the workbook.
- Python tools lay out the climb levels from design rules.

How it was made

Eight phases, each ending in a playable checkpoint: plan, prototype (charge + climb), restoration, chapters, balance, meta, feel, ship. I designed and directed; an AI coding assistant (Claude) wrote most of the code to my specs, and every rule, number and redesign was decided and checked by me. The biggest redesign came from playing the first version: the restoration became the painting itself as sand.

Roadmap

NEXT	WHY
Chapters 4–6 (Botticelli, Monet, Klimt)	Content cadence; a new wing in the gallery
Localised titles	The word reveal in 2 more languages at launch
Grand Climb leaderboards	A server-backed weekly board for the event
Real ad and IAP SDKs	Behind the existing interfaces
Painting-themed skins	The Wave spirit, the Starry Night spirit

Risks

Players love one stage and tolerate another: rate each stage in playtests; **the climb ad promise:** keep every ad frame from the build; **sand performance on low-end phones:** 40×54 grains, one texture, 60 fps.