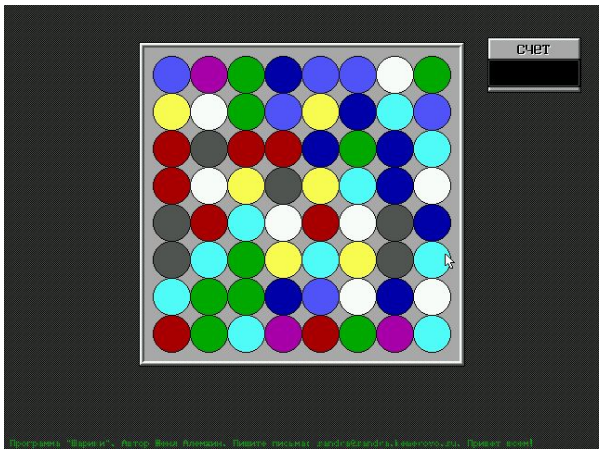
Skillz Design Guide

Genre: **Puzzle** Subgenre: **Match-Three**

Overview of the Genre

Match-Three games have existed as a subgenre within casual puzzle games for over twenty years, dating back to a Russian PC game called *Shariki*, published in 1994. The first major commercial success was the game *Bejeweled* (originally named *Diamond Mine*) created by PopCap in 2001, which was followed by numerous sequels and remains popular today. The *Bejeweled* line is one of the most successful video game franchises of all time, with over half a billion players and hundreds of millions of copies sold.



***Shariki* (Eugene Alemzhin, 1994)**

***Bejeweled* (PopCap, 2001)**

The success of Bejeweled led to another smash hit, *Candy Crush Saga,* released by King in 2012. *Candy Crush Saga* has been a top earning mobile game for many years now, and currently sits in the #1 spot on the Top Grossing charts, earning over a million dollars a day.

***Candy Crush Saga* (King, 2012)**

Match-Three gameplay typically takes place in a large grid filled with a random arrangement of colored game pieces. The player works to create groups of three matching items, usually by swapping, but sometimes by rotating or sliding, depending on the game. When a match is made, the objects explode, removing them from the grid. As items are removed, new ones drop in from the top, refilling the grid. The player earns points for each explosion, with the score value scaling up based on the size of the group.

Individual games usually distinguish themselves by adding visually exciting power-ups (most of which simply serve to destroy large numbers of items at once) and by focusing the player on various objectives, such as collecting particular colors, swapping in every space on the board, or removing certain obstacles.

Skillz Design Guidelines

In order to create a successful Skillz game within the Match-Three genre, we recommend adhering to the guidelines below.

Fairness

First and foremost, the game must provide a level playing field for the players involved. Each player should receive the exact same arrangement of game objects at the beginning of the game, and the colors that are added onto the game board during play need to be the same for all players as well (ideally on a column-by-column basis). The game objectives, game rules, and power-ups should be identical for all players as well.

When generating game setups, use Skillz Random as the randomizer. We have tested it extensively, and using it allows for common seeds which enable tournament viewing and fairness. This is also critical to allowing proper streaming. We provide much more detail in our support materials at https://cdn.skillz.com/doc/developer/

Competitive Format

For good monetization and the rapid turnover of open matches, we recommend an average game time of under three minutes. For simplicity and ease of onboarding, we recommend limiting each game to a single “level” with a clear objective which is called out at the beginning of the game.

Game Scoring

Each game needs to end with a clear score, based on the level of skill demonstrated by the player during the game, with no elements of randomness. If the goal of the game was a particular objective, then score should be awarded for partial completion and a time bonus for full completion, so that the likelihood of a tie occurring is low.

Each game should end with a Scoring Summary screen that includes a breakdown of the player’s score, in order to help players understand how their strategy played out so that they can build mastery from game to game.

First-Time User Experience

New players in your game should see a tutorial which teaches them how to play. All core rules and game concepts should be covered, along with information about how points are scored and some basic strategic advice (leaving the finer points of strategy for players to figure out for themselves).

The “How To Play” advice in the tutorial should be followed up with game tips within the app (such as on loading or scoring screens) in order to remind players of any nuances that they may have overlooked or forgotten about. The goal is to help players build mastery over time as they play, which will increase their engagement and retention with the game as well as their willingness to play cash matches.

Designing for Competitive Play

When designing your game, make it your goal to provide a best-in-class competitive experience in order to maximize players’ desire to compete. Below are some key considerations for the Match-Three subgenre.

Visual Clarity

Readability is crucial in fast-paced puzzle games. When choosing colors for the game objects, select high contrast color combinations so that different types can be distinguished easily. Giving each color of item a different distinctive shape or a unique texture is also helpful to aid players who may suffer from poor color vision.

Power-ups should have unique shapes (including the silhouette) and be easily distinguishable from normal game objects. Giving power-ups a little bit of animation (like a sheen or sparkle) will help them to stand out.

When game objects are exploding or power-ups are being detonated, it is fine to have thrilling visual effects, but try to avoid obscuring the screen for any length of time so that gameplay is not interrupted.

Avoid Control Lockout

Due to the numerous “cascades” that can occur in Match-Three games, control lockout is often a problem. A cascade is when one match leads to another match, which may lead to another, and so on. In many Match-Three games, the player cannot make any moves while this is happening and is essentially “locked out”.

Competitive players want the controls to be as responsive as possible. When cascades are occurring and animations are going on, the player should ideally still be able to continue playing rather than needing to wait. If some delay is needed due to the game logic, try to minimize lockout periods by accelerating the animations with each cascade, and provide a visual indicator to the player when the controls are active again.

Creating a Compelling Game Loop

In order to maximize the likelihood of repeat play, spend time polishing the core game loop to make it as exciting as possible. Use visuals and sound effects to celebrate winning moments by thrilling the player. If possible, configure your game to build momentum as the game goes on, speeding up the rate at which points are scored toward the end of the game by increasing the availability of power-ups or scoring opportunities.

Care should be taken to avoid fatiguing the player. Gameplay that is too difficult can be exhausting, and players may not want to play again. Ideally, game difficulty should be tuned so that the player is continuously engaged (not spending too much time hunting for moves) with ample opportunities for good players to demonstrate their skill by applying next-level strategies and advanced techniques, such as making larger matches and using power-ups.

Some visual effects can also be a source of fatigue, such as flickering, flashing lights, or screen shudder, and care should be taken not to overuse them. Additionally, sound effects that are too repetitive or too loud can be a source of auditory fatigue.

Creating Gameplay Depth

Gameplay depth is important in skill-based competitions so that players have ample opportunities to showcase their skill and to maximize long-term retention. Ideally, a competitive game would be simple to learn and engage with, while at the same time having a high “skill cap”, meaning that achieving the maximum degree of skill and performance requires a fair amount of practice and strategy.

In Match-Three games, gameplay depth can be created in four primary ways:

- **Increase the value of large matches** -- At a basic level, players should always be incentivized to seek out large matches rather than small ones. This rewards players for setting up big matches, or for taking extra time to spot them. Otherwise, the game can devolve into a race of pure speed, where immediately swapping any viable match is the only strategy.
- **Offer power-ups to the player** -- Most Match-Three games provide players with power-ups that will destroy large numbers of items at once to score big points. For example, a power-up might destroy a single row or column, explode all objects within a certain radius, or clear all items of one color from the board. These are usually provided at the start of the game (either in the level or as additional buttons in the UI) or they are created during gameplay. For a skill-based game, it is important that power-ups not be random in nature; ideally each one would have a deterministic outcome when it is activated.
- **Place obstacles or hazards on the board** -- Obstacles offer a way to force players to think strategically. They could be as simple as an interesting board shape, or more complicated, like a blocker piece that must be destroyed by making matches in an adjacent square (possibly even matches of a particular color). More challenging obstacles can be larger in size or require multiple matches to remove.
- **Give players creative objectives** -- Finding matches doesn’t need to be the only way to score points in the game. You could instead focus players on other objectives, such as removing a certain obstacle, dropping a game object to the bottom of the screen, making a swap in every square of the board, or removing a certain number of items of one color. For added challenge, the player can be

given a limited number of moves to complete the objective, with extra points for finishing early.

Keep in mind that you don't need to incorporate all of these ideas into every game; each new game mechanic has a cost in terms of complexity and difficulty in onboarding new players. We recommend choosing a few elegant, strategic game mechanics that fit with the overall style and feel of your game.

Don't Waste Power-Ups

Players usually work hard to create and gather power-ups during a game, and it can be really dissatisfying if they get wasted. In some games, power-ups are lost if one blows up another, or if they are still sitting on the board unused when the game ends. To fix this and to help the game build momentum as it is played, we recommend two things:

- If one power-up destroys another, have the destroyed power-up detonate as well to create an exciting chain reaction.
- If power-ups are left on the board at the end of the game, consider having a brief "grand finale" during which the player cannot make any moves and the power-ups trigger one at a time. (Triggering them sequentially in a non-random order is usually more exciting than setting them all off at once.)

Maximizing Replayability

When creating a game for skill-based competition, it is important that players be able to play the game again and again while receiving a fresh challenge each time. This means that levels should never be solvable with a single consistent strategy, because players will just memorize the answer and get maximum points every time. Ideally, the game would have a wide variety of game setups that can occur to provide players with a near-infinite number of challenges to solve.

Here are some elements that can be varied in order to create diversity in game setups, for programmatically producing an endless number of challenges:

- The initial arrangement of game objects in the grid (the main solution by far)
- The shape of the grid and the positions of any obstacles or hazards
- The positioning or availability of power-ups

- The level objectives and/or number of moves allowed

These can all be randomized to create diversity, but we recommend that the randomization of game setups be carefully controlled to ensure that each level is solvable (with regard to any special objectives) and most importantly, fun to play.

Celebrate Combos

Combos (cascades) are important both for excitement purposes and as reinforcement of correct strategies -- celebration will intuitively tell players to pursue a particular move as more worthwhile than other choices. Using thrilling animations, bright color palettes, and celebratory sound effects is a way to ramp up the reward for increasingly difficult combos.

When scoring combos, it makes sense for each cascade to be worth a bit more points, so that players are rewarded for setting up chain reactions. However, these point increases should go up in a linear rather than exponential fashion. For example, cascade scores should follow a progression like 50+100+150+200+250, rather than 50+100+200+400+800. If you were to double the value of a match for each cascade that occurs, then a long cascade can result in an astronomical amount of points, which would cause the luck of a single move to overshadow all of the skill that the player has applied during the course of the game.

Other Considerations

Here are a few other best practices about mobile games in general that Skillz recommends to developers we work with:

Portrait Phone Orientation

Studies have shown that mobile game players have a strong preference for games that are played in portrait orientation, rather than landscape orientation, particularly on mobile phones.

Gameplay Using Only One Thumb

Similarly, studies have also indicated that mobile gamers significantly prefer to play games with one hand, using for input the thumb on the same hand that is holding the device. If your game is difficult to play in this manner, consider iterating.

Pause Button

Because players are usually playing for real money in our games, the outcome of a single match is more important to them than might be expected for most mobile games. But because they are playing on a mobile device, often while in transit or being interrupted, they often strongly desire to pause the game. The best practice is to include a pause button that pauses the game and hides any information that the player could use to gain an advantage by pausing frequently.

Meaningful Sound Effects

Helpful sound effects are an excellent way to give players feedback on whether or not they're doing well in a game, or why something happened on a part of the screen that they weren't looking at. In Skillz games, helpful sound effects (SFX) are a much more valuable addition than background music.

Controls for Muting Game Audio

Players often use their devices for multiple functionalities at once, especially listening to music from a background app while playing a game. Give users options to mute or adjust game audio, with separate controls for game music and SFX. All of these are great ways to make sure players can engage with your game in the manner they prefer.

Soft-Launch Benchmarks

Skillz considers the following metrics when evaluating your game during launch, and a solid benchmark is listed next to each:

D1 Retention (all players)	28%
D7 Retention (all players)	14%

D30 Retention (all players)	5%
Daily games/non-cash player	10
P1 Retention (cash players)	75%
P7 Retention	33%
P30 Retention	17%
Daily games/cash player	16
Install-Deposit Ratio	5%
Average Cash Entry Fee	$1.50

Note that individual games may exhibit significant variations, particularly around number of games played (depending on the length of a single match), but the above is meant to provide a good holistic balance to give you a sense of relative game performance.