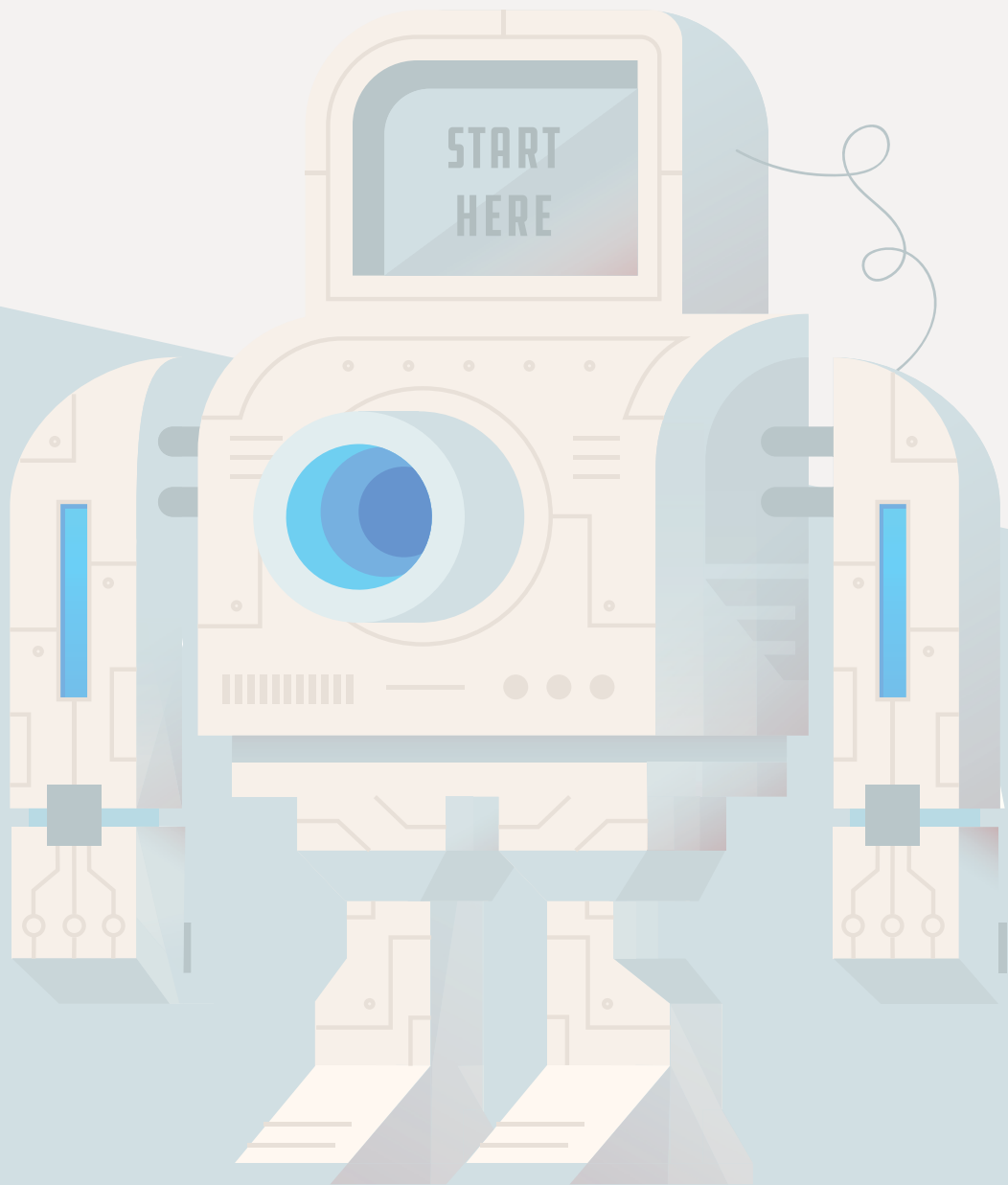


Curriculum Guide



Overview



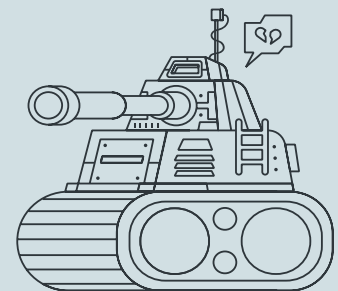
Riot Games' Game Design curriculum is an entry-level course that teaches high school students the fundamental elements of game design using a framework and interactive workshops created by our own game designers. Students will ultimately utilize their newfound knowledge of core game design concepts like goals, types of fun, opposition, rules, interaction, and balance to create a paper prototype of a multiplayer game.

Teaching Goals



1. Outline and implement an engaging framework for understanding game design.
2. Empower students with language and concepts necessary to engage more deeply with games.
3. Develop students' collaboration skills, creativity, and curiosity.
4. Provide the opportunity for students to have a hands-on experience creating games.
5. Encourage ongoing excitement to learn and think about games after the curriculum is completed.

Our curriculum is adapted from a college-level curriculum designed by Stone Librande, a Senior Game Designer at Riot Games.



Origins and Values

2016

URF Academy is Launched

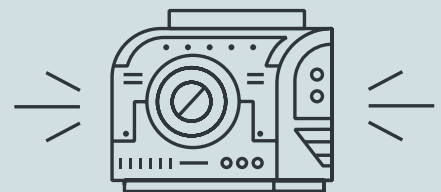
In 2016, a group of Rioters launched URF Academy, an interactive game design workshop for high school students at our headquarters in Los Angeles. URF Academy's goals were to teach local students about fundamental concepts in game design and showcase the breadth of careers in the gaming industry.

2018

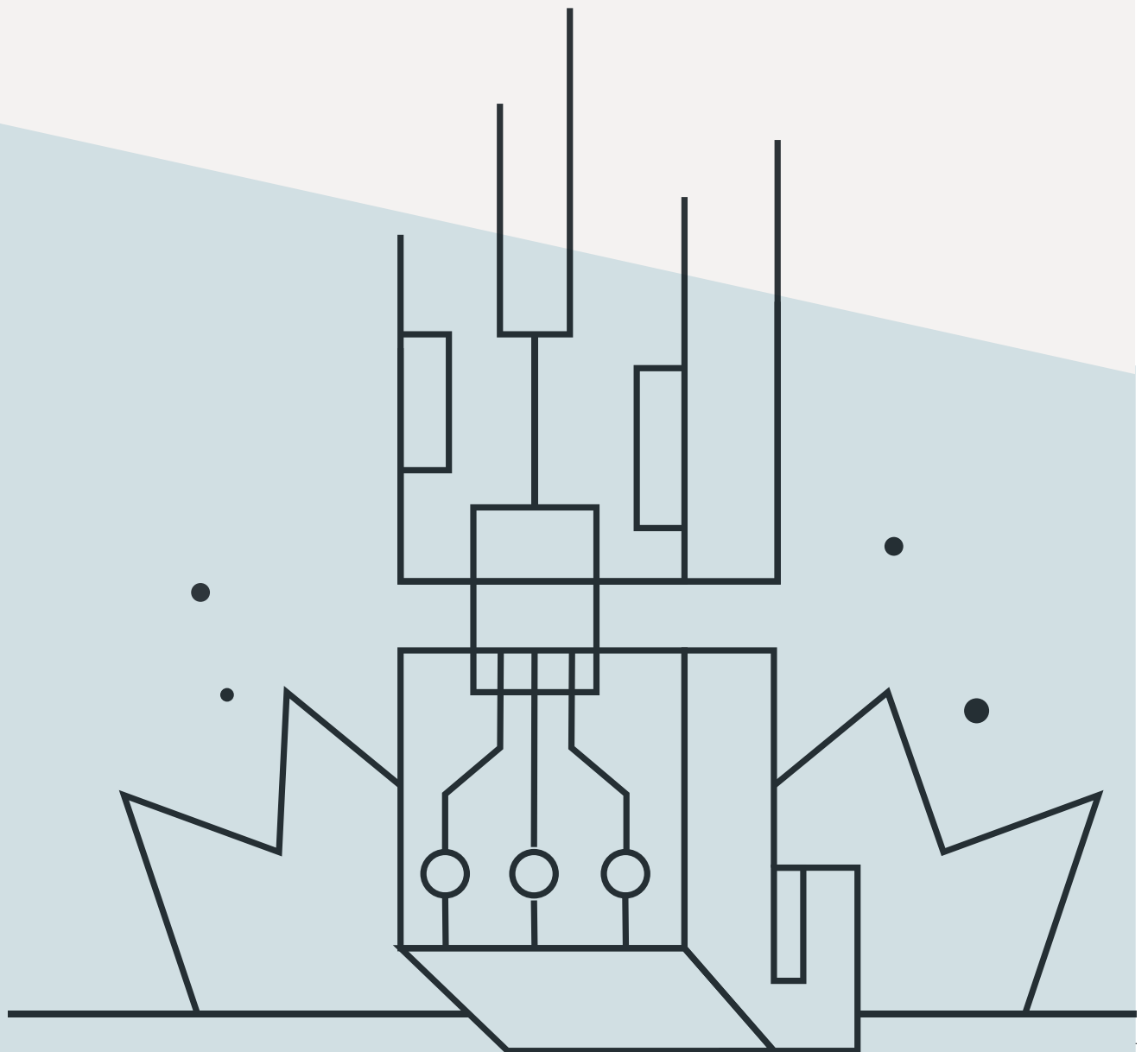
URF Academy Expands

After hosting more than 500 students over the course of two years, we expanded URF to several regional offices, including St. Louis, Dublin, Sydney, São Paulo, and Mexico City. Simultaneously, we began co-developing a free, online curriculum with two veteran computer science and game design educators to empower teachers to provide high quality game design instruction to high school students around the world.

We designed the curriculum with accessibility in mind. Any teacher with basic access to the internet and some paper should be able to teach students how to make a fun game.



We want to democratize game design education for all and inspire the next generation of game designers.



Curriculum



Overall Difficulty

Content was designed for high school freshmen/sophomores, but can be applicable for middle school students (ages 12-13) with additional guidance



Course Length

5 core modules containing 9 lessons

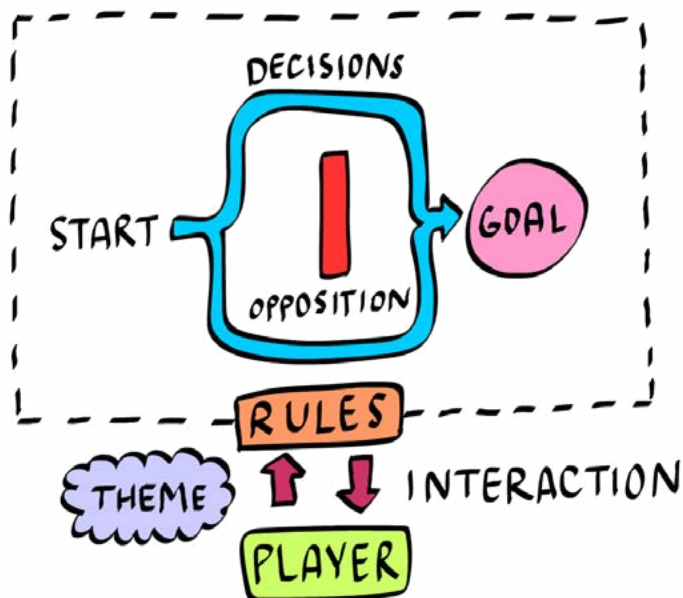
Each lesson takes 60 minutes

1 final project module containing 5 lessons

Each lesson takes 60 minutes



Game Design Framework



Structure

MODULE 01

Game Feeling & 8 Kinds of Fun

- Define game feeling and explore memorable experiences and emotions students have encountered while playing games
- Explore how types of fun be categorized and utilized to help produce a game feeling
- Introduction to the game design framework and how it can be used to design high quality games

MODULE 03

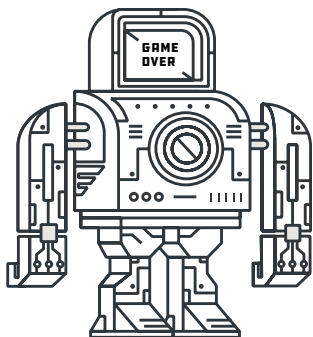
Meaningful Decisions & Opposition

- Learn how to use problem solving and iterative design to improve gameplay quality
- Learn about opposition, flow, and core game loops by 'programming' a balanced game

MODULE 05

Interaction

- Learn how game mechanics are used to create meaningful decisions (depth) and rich gameplay
- Explore depth, breadth, complexity, and elegance with regards to game



MODULE 02

Goals & Pacing

- Learn how goals and subgoals affect the player's experience through an interactive game where the rules are constant but the goals change
- Understand several criteria for evaluating goals and designs
- Learn how goals and subgoals can influence pacing

MODULE 04

Rules, Thematics, & Complexity

- Learn how thematics and narrative influence a game's mechanics and rules to create resonant gameplay
- Learn about complexity as it pertains to rules and techniques to reduce it, such as piggybacking

MODULE 06: FINAL PROJECT

Paper Prototype

- Learn how to develop a game premise by creating the theme, title, type of fun, setting, narrative, player, goal, opposition, mechanics and rules
- Learn several techniques for creating new mechanics, such as iterating with constraints, idea spiraling and backtracking
- Learn about the benefits of paper prototyping and some techniques to quickly and affordably create them
- Learn about playtesting games to find problems, identify opportunities for improvement and validate assumptions about a particular design
- Learn about giving and receiving feedback and the qualities of high and low quality feedback

Education Standards Connections

ELA COMMON CORE STATE STANDARDS: SPEAKING & LISTENING	
SL.9-10.1	Initiate and participate effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grades 9-10 topics, texts, and issues, building on others' ideas and expressing their own clearly and persuasively.
ELA COMMON CORE STATE STANDARDS: LANGUAGE	
L.9-10.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.
L.9-10.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.
L.9-10.3	Apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.
L.9-10.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
ELA COMMON CORE STATE STANDARDS: SCIENCE & TECHNICAL SUBJECTS	
RST.9-10.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks, attending to special cases or exceptions defined in the text.
RST.9-10.7	Translate quantitative or technical information expressed in words in a text into visual form (e.g., a table or chart) and translate information expressed visually or mathematically (e.g., in an equation) into words.

NEXT GENERATION SCIENCE STANDARDS (NGSS): ENGINEERING DESIGN	
HS-ETS1-1	Analyze a major global challenge to specify qualitative and quantitative criteria and constraints for solutions that account for societal needs and wants.
HS-ETS1-2	Design a solution to a complex real-world problem by breaking it down into smaller, more manageable problems that can be solved through engineering.
HS-ETS1-3	Evaluate a solution to a complex real-world problem based on prioritized criteria and trade-offs that account for a range of constraints, including cost, safety, reliability, and aesthetics as well as possible social, cultural, and environmental impacts.
CTE MODEL CURRICULUM STANDARDS: ARTS, MEDIA AND ENTERTAINMENT	
D2.0	<p>Analyze the core tasks and challenges of video game design and explore the methods used to create and sustain player immersion.</p> <p>D2.2 Break down and identify the fundamental building blocks of game play: player goals, player actions, rewards and challenges D2.4 Research and define the term “player immersion” D2.5 Explore and explain the factors that create player immersion in a game D2.8 Prototype a small game using real-world objects, such as dice, cards, balls, pen and paper, etc.</p>
D5.0	<p>Demonstrate an understanding of testing techniques used to evaluate, assess, rate, and review quality assurance of video games.</p> <p>D5.1 Test and analyze games to determine the quality of rules, interfaces, navigation, performance, and game play D5.2 Identify the key elements in a game and make intelligent judgements about whether the game succeeded or failed in its objectives.</p>
D6.0	<p>Understand the general procedures, documentation, and requirements of large scale game design projects. Examine and categorize the significant processes in the production of games.</p> <p>D6.2 Discuss the iterative nature of game and simulation design D6.3 Develop design plans, character sketches, documentation, and storyboards for proposed games. D6.7 Create a set of original design documents and build a small game.</p>

D10.0	<p>Students will build a game that demonstrates teamwork and project management by creating a game design production plan that describes the game play, outcomes, controls, rewards, interface, and artistic style of a video game.</p> <p>D10.2 Solicit and accept constructive criticism D10.6 Test and debug the completed game D10.7 Apply listening, speaking and collaborative communication skills to effectively convey information. D10.8 (Optional) Demonstrate a professional level of written and oral communication as necessary in the game industry.</p>
CTE MODEL CURRICULUM STANDARDS: INFORMATION AND COMMUNICATION TECHNOLOGIES	
D2.0	<p>Demonstrate an understanding of game and simulation analysis, design, standard documentation, and development tools.</p> <p>D2.1 Demonstrate an understanding of the vocabulary for discussing games and play by listing and describing the general procedure and requirements of game and simulation design. D2.3 Develop a game design document or blueprint. D2.6 Demonstrate an understanding of the techniques used to evaluate game mechanics, game play, flow, and game design. D2.7 Describe the complex interaction between games and players and the role it plays in the popularity of a game. D2.8 Experience the methods used to create and sustain player immersion. D2.10 Make informed decisions about game physics: how the game world works, how the players interact with the game world, and how the players interact with one another.</p>
D3.0	<p>Create a working game or simulation individually or as part of a team.</p> <p>D3.1 Create a storyboard describing the essential elements, plot, flow, and functions of the game/simulation. D3.2 Create a design specification document to include interface and delivery choices, rules of play, navigation functionality, scoring, media choices, start and end of play, special features, and development team credits. D3.3 Using simple game development tools, create a game or simulation. D3.4 Present the game or simulation.</p>
D4.0	<p>Identify, describe, and implement standard game/simulation strategy and rules of play.</p> <p>D4.1 Understand strategic outlining in game designs. D4.3 Use key strategic considerations in game design. D4.4 Understand the process of creating and designing player actions. D4.5 Create and design the game flow as it relates to story and plot. D4.6 Assess common principles and procedures in game flow design. D4.7 Describe rule creation elements of player challenge.</p>

Sources

1. Mark Rosewater (2016). GDC talk on Magic: The Gathering.
2. Marc LeBlanc (2014). 8 Kinds of Fun.
3. Robin Hunicke, Marc LeBlanc, Robert Zubek (2014). MDA Framework.
4. Riot Games (2018). So You Wanna Make Games?? | Episode 10: Game Design.
5. Instructables. How to Make a Paper Football.
6. Sakichi Toyoda (1930s). Five Whys.
7. Extra Credits (2014). Fail Faster - A Mantra for Creative Thinkers - Extra Credits.
8. Mark Rosewater (2016). GDC talk on Magic: The Gathering.
9. Mark Rosewater (2016). GDC talk on Magic: The Gathering.
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11. Extra Credits (2013). Depth vs Complexity - Why More Features Don't Make a Better Game - Extra Credits.

Vocabulary

TERM	LESSON NUMBER	DEFINITION
Game Feeling	1-1	The emotional response the game evokes in the player. The same game experience can result in a different emotional response for different audiences.
Player Experience	1-2	The impact of any given play session of a game on the player; its gameplay, narrative, thematic, pacing, difficulty, etc.
8 Kinds of Fun	1-2	There are 8 kinds of fun: sensation, fantasy, narrative, challenge, fellowship, discovery, expression, and submission.
Sensation	1-2	Fun derived from the senses; touch, auditory, visual.
Fellowship	1-2	Working together to complete an objective or to have fun through a shared experience.
Challenge	1-2	Making meaningful decisions to overcome challenges and gaining mastery over time to overcome increasingly difficult obstacles.
Fantasy	1-2	Living out a game experience as if you were a character in that world. Sometimes also referred to as “immersion” by players.
Narrative	1-2	Pleasure from experiencing a well-told story as it unfolds.
Discovery	1-2	Fun derived from exploring and learning new things, both externally (e.g., interacting with uncharted territories) and internally (e.g., self-discovery).
Expression	1-2	Expressing oneself in the course of the game through acts like creating, building, or making choices (e.g., Minecraft is a game with a high capacity for expression).
Submission	1-2	Players seeking to relax and unwind with tasks that require low cognitive load.

Goal	2-1	Objectives you're trying to accomplish in a game, usually by overcoming some kind of obstacle.
Pacing	2-1	The speed at which things happen in a game and demand a player response. A fast-paced game might demand that players react very quickly or be penalized, whereas a slow-paced game might place more value on taking time to make strategic decisions.
Playtesting	2-2	One of the processes by which games in development are tested and modified. Players play the unfinished game to identify issues. After changes are made to the game, players test it again and see whether the issues have changed, been solved, or been compounded.
Opposition	3-1	The obstacles between a game's player(s) and the goal they're trying to accomplish. In a noncompetitive game, this could take the form of puzzles to solve, timers, a score to beat, or a difficult character to defeat in battle. In a competitive game, "opposition" usually includes other players.
Flow	3-1	A player being "in the zone," a state of being deeply immersed within a game. Called "flow" because the experience goes smoothly, without anything disrupting or distracting from the player's focus on the game.
Core Game Loop	3-1	The repeated set of actions that comprise the organizing principle of the game. Players engage in these actions repeatedly. For example, the core game loop of Super Mario games is that Mario enters a level, navigates around a series of obstacles, and reaches the flag at the end.
Balance	3-1	How easy or difficult the goals in a game are to accomplish. A game is "balanced" whenever it is neither overwhelmingly easy nor overwhelmingly difficult for the player to accomplish their goals.
Iteration	3-1	In the context of game design, going through multiple rounds of development and testing to get the game to a final state. Developers make changes, test, make more changes, test, and repeat until the product is ready.
Five Whys	3-1	A method of discovering the root cause of a problem by asking "why" multiple times following the first order problem.
Failing Fast	3-1	In the context of game design, accepting failed ideas as part of the creative process and moving on without lingering or trying to make a failed idea work.

Rules	4-1	The guidelines by which a game operates and through which gameplay is created, and within which players are expected to operate to accomplish their goals. Includes elements such as game mechanics and game systems.
Thematic	4-1	A unifying idea that is present throughout a game's mechanics, narrative, audio, visual effects, and general aesthetic.
Complexity	4-1	The amount of information a player needs to know in order to make a decision.
Narrative	4-1	The glue that ties gameplay and theme together. May be as direct as a story being told, or a more subtle set of in-game justifications that create a system of logic for how the gameplay operates within the context of the theme. In Super Mario, the narrative reason Mario has to navigate through the levels is because he's trying to save a Princess (and he has to keep jumping through them because she's perpetually in "another castle").
Resonance	4-1	Emotional impact on players whenever the different elements of a game consistently align with each other and with the game's theme. That consistency creates a strong and immersive experience.
Dissonance	4-1	Emotional impact on players whenever the different elements of a game don't match each other or the theme, drawing players' attention to the mismatch rather than the game itself.
Piggybacking	4-1	Use of preexisting knowledge to front-load game information to make learning easier.
Mechanics	5-1	The actions, behaviors and mechanisms that a designer uses to produce gameplay.
Depth	5-2	The ability for a player's decisions to result in meaningfully different outcomes. It's often referred to as the "meaningful decisions" that players make in a game.
Breadth	5-2	The number of decisions that a player can make at a given time.
Elegance	5-2	The ratio of depth to complexity. The higher the depth and the lower the complexity, the more elegant the design.

Paper Prototype	6-1	Fast, cheap tools that game designers use to emulate the game experience. Game systems can be tested without the time and cost it would take to create the product.
Game Premise	6-1	The basic structure of a game. Roughly broken down into the player-controlled character, the goal they're trying to achieve, and an obstacle in their way.
Iteration Path	6-2	Combinations of Players, Goals, and Oppositions that can be put together into a core game loop and tested.
Post-Mortem	6-5	A retrospective examination of the decisions made during development. What went well, what could have been done better, and lessons developers can learn for next time.