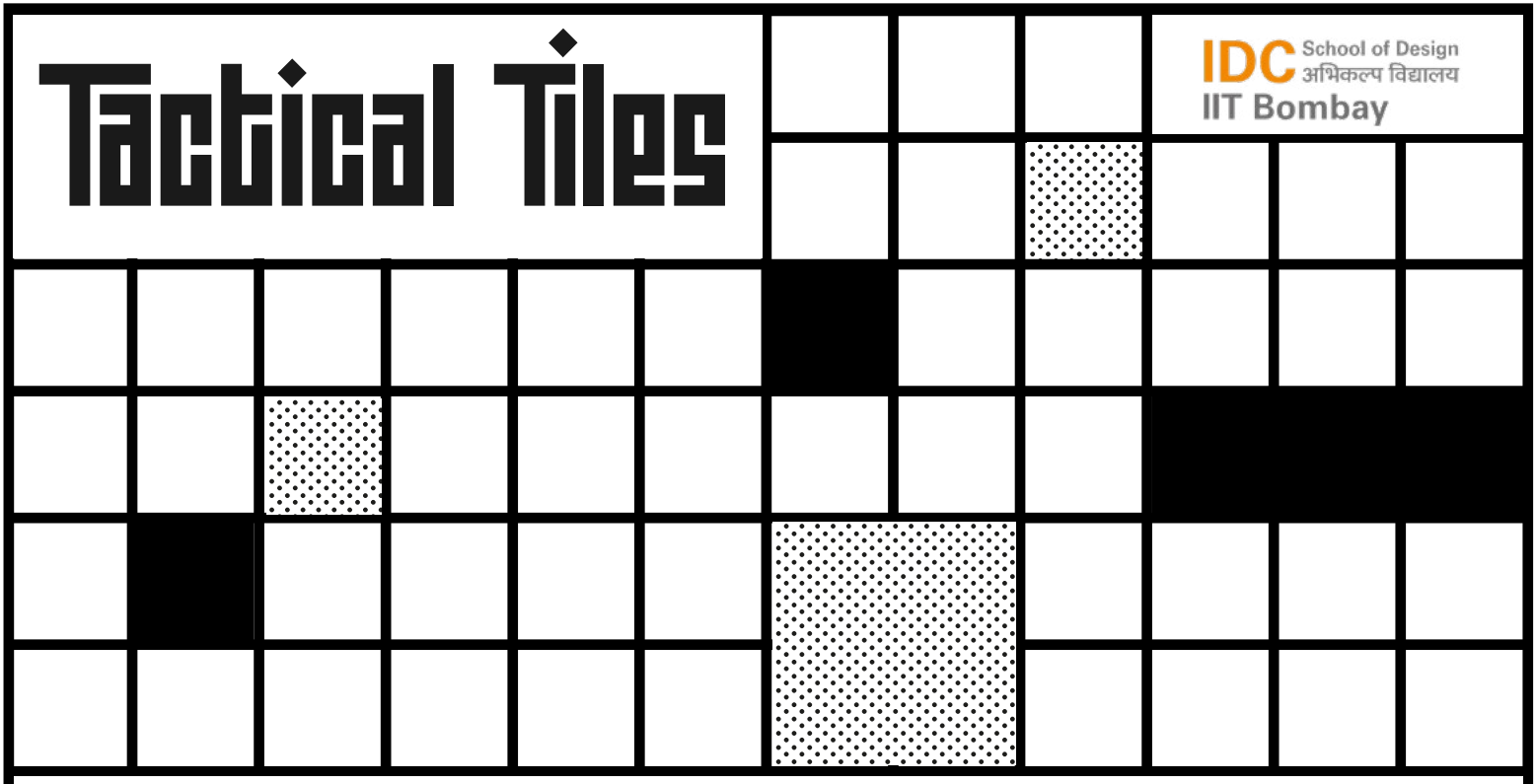
Tactical Tiles



IDC School of Design
अभिकल्प विद्यालय
IIT Bombay

A board game on Grid Alignment where "Every Move Shapes the Game"

Project by: **Pallavi Soni | 22M2270**
Guided by: **Prof. Prasad Bokil**

Communication Design
M.Des. Project III Report 2022-24

Approval Sheet

This Communication design project entitled "***Tactical Tiles***- a board game", by Pallavi Soni, Roll No. 22M2270 is approved in partial fulfillment of the requirements for a Master of Design Degree in Communication Design.

Project Guide: Prof. Prasad Bokil

Chairperson:

Internal Examiner:

External Examiner:

Date: 13th April, 2024
IDC School of Design,
Indian Institute of Technology, Bombay

Declaration

I declare that this written submission represents my ideas in my own words and where others' opinions or words have been included, I have adequately cited & referenced the sources.

I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated any idea/data/fact/ source in my submission.

I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been appropriately cited or from whom proper permission has not been taken when needed.

Name: Pallavi Soni
Roll no: 22M2270
Date: 13th April, 2024
IDC School of Design,
Indian Institute of Technology, Bombay

Acknowledgment

I am grateful to Prof. Prasad Bokil for his invaluable assistance and unwavering support throughout the research.

Special thanks to Madhuri and Malay for constantly giving me their time to review and improve my game mechanics and gameplay.

I extend my heartfelt gratitude to IDC staff, notably Nikhil Sir from Laser-Cut Studio, Deepak Sir from Wood Studio, and Abhijeet Sir from Paint Studio, who patiently helped all students and even worked on weekends to ensure the project's timely completion.

Thanks to my friends and batchmates from B.tech, M.tech, and M.des.—Shubham, Piyush, Muskan, Surbhi, Puja, Prince, and Vaishnavi—for consistently critiquing my work through playtesting and assisting me in completing this project.

Content :

Introduction.....01-04
- What is Grid?
- Why is it important?
- What is game?
- How does learning occur?

Motivation.....05-06
- Why board games?

Primary Study.....07-08
- Interviews
- Insights Gathered

Secondary Study.....11-28
- Bloom's taxonomy
- Probable takeaways
- Features to be included
- Anatomy of Grid
- Type of Grids
- Bombay Board Game Club Visit

Initial Ideation.....29-62
- Prototype 01
- Prototype 02
- Prototype 03
- Prototype 04
- What more could be done?
- Prototype 05
- Prototype 06
- Prototype 07
- Prototype 08

Learnings.....63

Sources.....64

Abstract

The grid is the structural foundation of all visual elements, from typography to columns, boxes, icons, and illustrations. It provides a framework for all creative decision-making, supporting content, and creating a consistent, repeatable, and responsive framework for design. Having spent over two years in a master's programme, I've consistently observed that a foundational understanding of grids is essential across all design disciplines.

While games can be powerful learning tools, they are not always the most suitable format for every situation. The ideal format depends on the content, learner, and context. Here, I opted to explore game design partially because it offered a new and engaging medium for me to explore and also it allows students to learn and explore concepts in fun and engaging manner.

Recognising the importance of comprehending these ideas, I proposed a game design approach to transform them into a tangible learning experience. My initial goal was to provide design students and beginners with a way to explore and practice grid concepts. By incorporating this medium, I hope to bridge the knowledge gap between theory and practice, assisting students in developing a key design skill in a fun and engaging way.

After starting with layout and refining the game play down to the alignment and arrangement of various elements throughout the grid. I happened to notice that numerous games can be played on the same hardware. I fully understand that this game may not cover the entire notion of grids and their uses. However, it is an initially attempt to create something that encourages practice by engaging in an engaging interaction.

"The grid is like the lines on a football field. You can play a great game in the grid or a lousy game. But the goal is to play a really fine game."

-Willem Hendrik "Wim" Crouwel

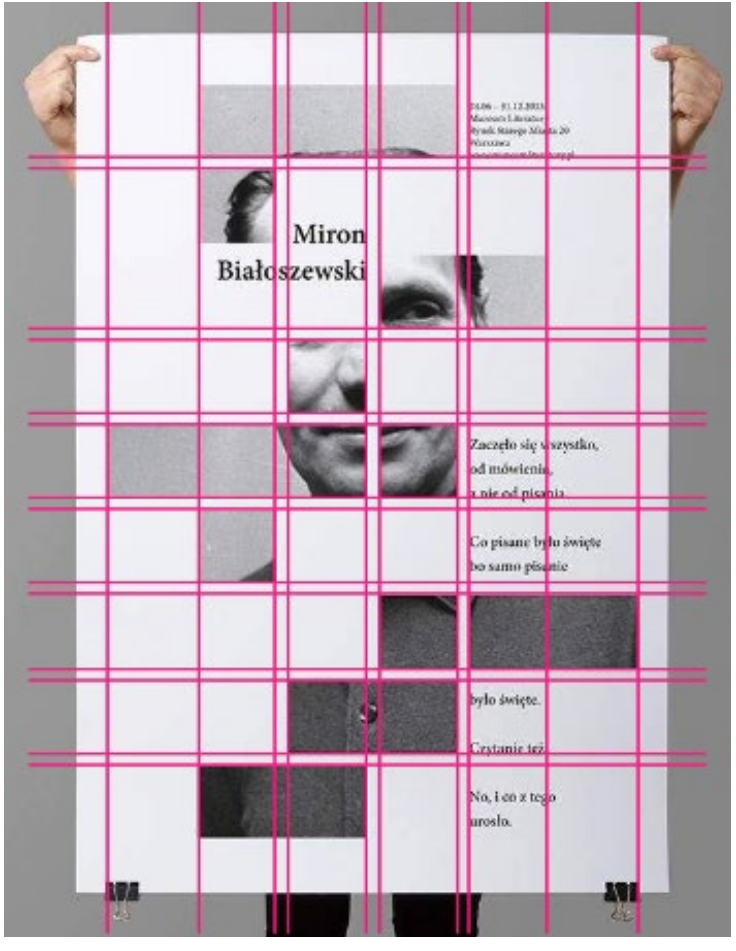
01. Introduction

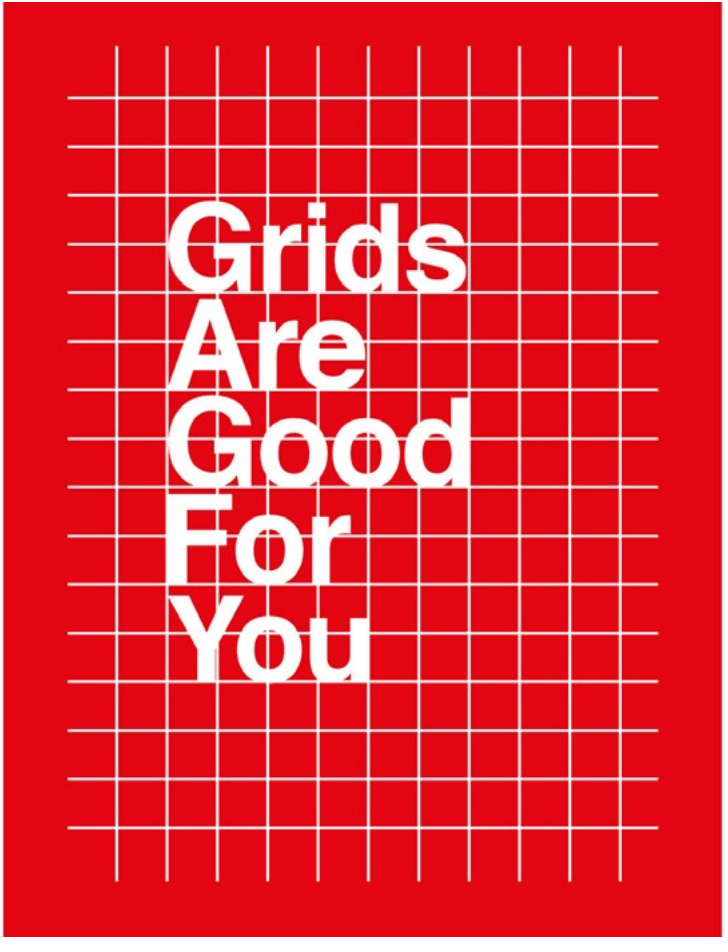
What is Grid?

A grid acts as a structure in design, consisting of intersecting vertical and horizontal lines. Designers use grids to organize text, images, and other elements. This structure ensures alignment and consistent placement across various parts of a layout.

Why is it important?

- Grids serve as a fundamental tool in graphic design, aiding in organization and efficiency across various disciplines.
- They facilitate the alignment and arrangement of design elements, ensuring a clean and cohesive layout.
- By providing a structured framework, grids streamline the design process, enabling designers to quickly position and scale elements with precision.
- Whether used to align typography for improved readability or to balance compositions through column structures, grids play a pivotal role in creating visually appealing and functional designs.
- They help maintain consistency and coherence, guiding designers in crafting polished and professional layouts. Additionally, grids promote white space impact of designs.
- From editorial layouts to logo design and illustration, grids are versatile and adaptable, offering a likewise approach to design composition.


Miron
Białoszewski
Zaczęło się wszystko,
od mówienia,
a nie od pisania.
Co pisane było święte
bo samo pisanie
było święte.
Czytanie też.
No, i co z tego
urosło.


Grids
Are
Good
For
You

What is a Game?

Chris Crawford, a well-known authority in game design, defines:

"Games are interactive, playful and entertaining goal oriented activity. Games are played against an agent, who can be a player or a machine and where both are permitted to interfere, challenge and outperform each other."

Games have a unique edge over the other ways of learning. They have a potential to make learning playful, self-paced and covert. They are fun because they are an interactive group activity. Edutainment describes games that blend education with play, delivering content seamlessly through engaging and enjoyable gameplay.

How does learning occur?

Understanding how learning occurs in educational games is critical. The answer lies in studying the behavior of players during the learning stages of new games. Children, and even grown ups, discuss the gameplay after the game is over.

- Mastery of any game is possible only with repeated play and practice. These sessions are interesting. Serious players discuss their moves with their partners even during the game.

- The player tends to reflect on his own decisions taken while playing and visualizes alternative moves that he could have executed.

- More often in friendly games the players explain how they or their opponents could have played, leading to discussion. In purposeful games, this learning is a valuable resource.

02. Motivation

My motivation for this project stems from personal challenges I faced transitioning from an engineering background to a Master's of Design (M.Des.) program. Initially, my design knowledge was limited, and the software overwhelmed me. While I learned to produce functional work, I observed other students mainly from B.Des. creating refined and creative designs. Discussions with peers revealed a crucial difference: their foundational design education, particularly the grid system, provided a strong base for visual communication.

Despite overcoming early struggles through self-learning and reference materials, a gap remained. Many M.Des. students from non-design backgrounds (mainly architecture, engineering) struggled with design presentation and portfolio development. While they grasped design principles, their final outputs lacked visual appeal. This often stems from a lack of understanding of the underlying grid system, the framework for arranging elements. The result was average or poorly designed layouts that could lose viewers' interest.

Furthermore, the placement season highlighted the importance of a captivating portfolio in a competitive environment with limited recruitment opportunities. While design success depends on various factors like colour, typography, and hierarchy, the grid system serves as the essential building block for visual design and structure.

My initial game prototypes aimed to address multiple design concepts. However, due to limits, I restricted my concentration to trying to master grid organisation. This project represents my attempt to break down this complex topic into a tangible, interactive game or activity and to ignite a passion for learning and practicing grid systems in design students, similar to my own journey.

Why Board Games?

My fascination with board games as a medium grew significantly during my recent involvement with the IDC game club. While I had previously observed students playing, I hadn't personally participated until this semester. Games like Catan, Medici, Ticket to Ride, and Blood on the Clocktower, along with many others, became a source of late-night entertainment with peers and fellow enthusiasts.

Through these experiences, I realised the captivating nature of well-designed board games. They have the power to hold players' attention for extended periods, especially when played with a group. However, the initial impression for new players can be daunting due to seemingly complex rulebooks. Yet, the true engagement lies in overcoming that initial hurdle. Once the rules are understood and applied, elements like strategy, decision-making, and interaction with other players come into play. These aspects were what truly captured my interest in this medium.

Board games are a valuable learning tool, enhancing creativity and improving future memory. They also foster social interaction and personal development, especially for shy or reserved individuals. Even an hour of strategic board game play can significantly improve future memory. Playing can lead to increased self-esteem and a sense of belonging within a social group.

03. Primary Study

Second-year M.Des. students from non-design backgrounds were surveyed to assess their practical knowledge in grid layout and typography after completing one and a half years of study.

- Which specific modules on grid and layout have you covered in your coursework?
- Can you share instances where you successfully applied these modules in your design projects?
- How much of the learned content have you retained, and to what extent do you apply it in your daily design work?
- Have you faced any challenges in implementing grid and layout principles, and if so, how did you overcome them?

NOTE : Course' topics covered, derived from student input, acknowledges potential gaps or omissions, reflecting the reliance on student's memory.

Student 1 (26 Yr. Old)

Mobility & Vehicle Design, Bachelors: B.Tech.

Module: Exposure to grid system in visual design

Topics Covered: Basics of Grid, Layout, Visual Hierarchy with InDesign Software

"We took the module very lightly, now for portfolio & presentations we struggle a lot."

Student 2 (24 Yr. Old)

Interaction Design, Bachelors: B.Tech.

Module: Introduction to Typography and Layout

Topics Covered: Basics of Grid, Layout, Typography & Expressive Typography

"I use same layout in every presentation, its safe. I struggle with choosing the font."

Insights Gathered

After a year and a half, second-year M.Des students with backgrounds outside of design shared their perspectives on how acquainted they are with grid layout and typography.

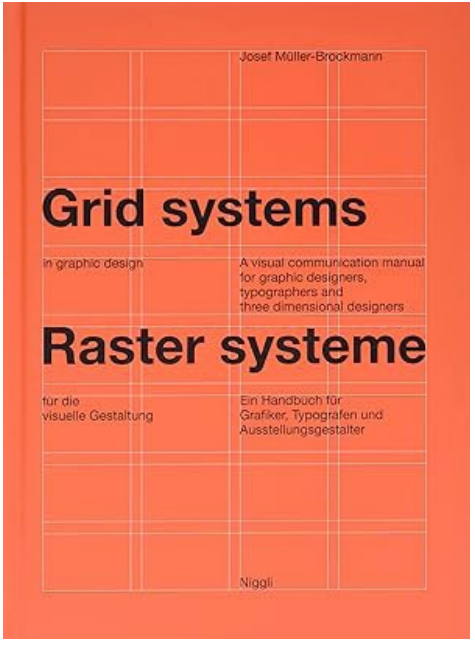
1. Challenges in Portfolio Preparation:
   Students struggle with font pairing and typography in portfolio preparation due to inadequate understanding and practice, hindering their ability to discern mistakes and improve design skills effectively.

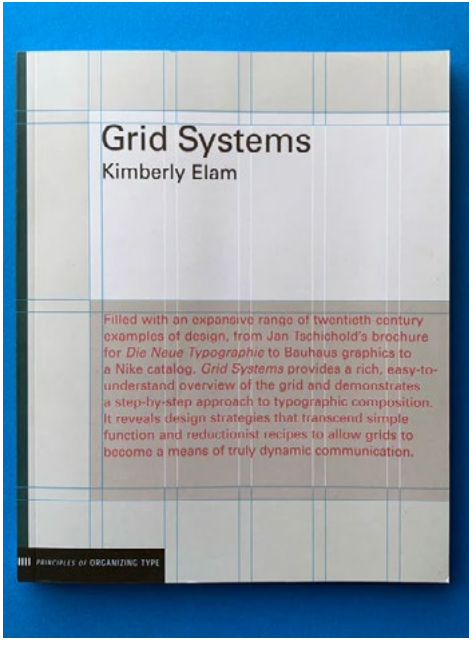
2. Need for Continuous Guidance:
   Students emphasized the need for continuous guidance and practice sessions to enhance their proficiency in grid layout and typography, citing a lack of regular feedback and practice opportunities as a contributing factor.

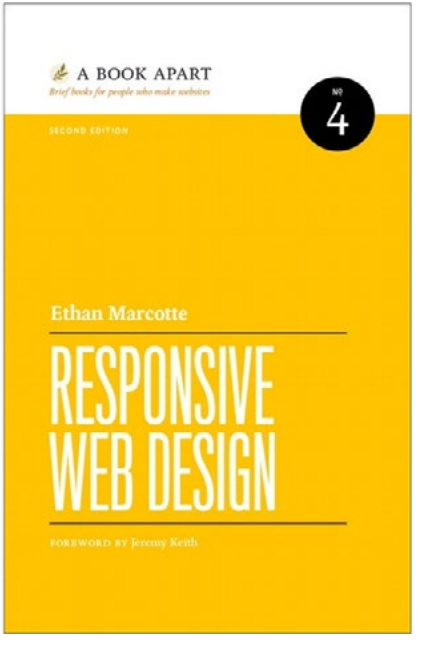
3. Limited Practical Exposure:
   The students' one-week module introduced grid, layout, and typography, but the lack of extensive practice and application hindered their understanding and confidence.

4. Dependency on Templates:
   Insufficient practice leads students to rely on templates or peer assistance for design skills, resulting in reliance on external resources rather than independent skill development.

03. Secondary Study





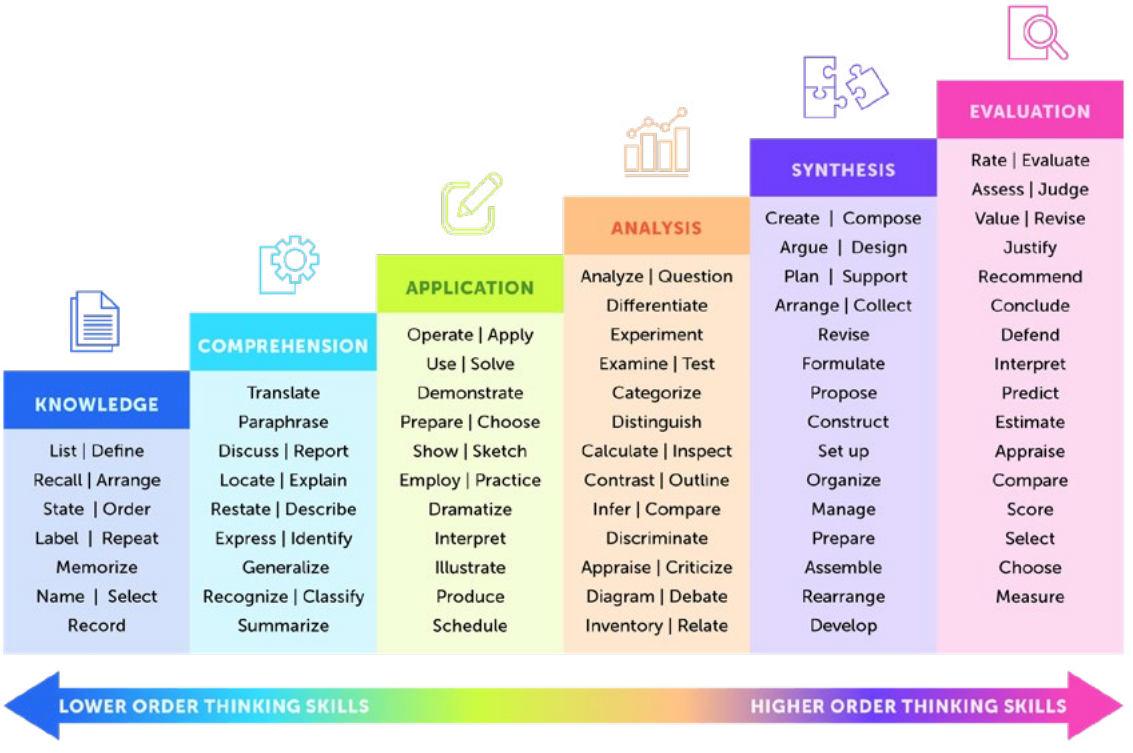


Bloom's Taxonomy

To assess the learning levels introduced through gameplay design and to gauge the extent to which players engage with these concepts, I referred to Bloom's Taxonomy.

Bloom's Taxonomy is a framework used to categorize the different learning objectives and skills that educators aim to develop in their students. Originally proposed by Benjamin Bloom, an educational psychologist from the University of Chicago, in 1956, this taxonomy provides a structured approach to understanding the cognitive processes involved in learning. This framework serves as a valuable tool for assessing the depth and complexity of learning achieved through gameplay interactions.

By aligning the gameplay mechanics with the levels of Bloom's Taxonomy, I aimed to create a learning experience that encourages players to progress from basic recall and understanding to higher-order thinking skills such as analysis, evaluation, and creation. Initially, I focused on higher-level learning objectives; however, after testing, the results did not meet my expectations, and the gameplay proved to be too ambitious. Consequently, I narrowed the focus to lower cognitive learning levels, which yielded more positive outcomes and better engagement from the students.



To better grasp the “concepts to learn” associated to grids and Bloom’s Taxonomy, I reframed their cognitive processes accordingly for my better understanding.

Probable Takeaways

1. Remembering:
At the basic level of Bloom's Taxonomy, students learn to recall facts and basic concepts related to grids. This involves remembering grid terminology, such as rows, columns, modules, and shapes.

2. Understanding:
Moving beyond mere recall, students should demonstrate understanding of grid structures and their components. This includes comprehending the relationship between rows and columns, understanding how shapes fit within the grid, and grasping the significance of grid alignment.

3. Applying:
Students should be able to apply their understanding of grids in practical contexts. This involves using grid structures to organise information, solve problems, or create designs. For example, they might apply grid principles to arrange objects on a game board or to design a layout.

4. Analysing:
When students evaluate grid structures, they employ higher-level cognitive skills. This may involve breaking down complex grid arrangements into their component parts, identifying patterns or symmetries within grids, or evaluating the effectiveness of different grid layouts.

5. Evaluating:
Students should be able to evaluate the quality and effectiveness of grid designs. This includes reviewing grid symmetry, balance, and alignment, as well as evaluating how effectively grids support their intended purpose or usefulness.

6. Creating:
Finally, students can demonstrate mastery of grid concepts by creating their own grid-based designs. This might involve designing game boards, creating graphic layouts, or developing architectural blueprints, where they must apply their knowledge of grids to produce original and innovative designs.

Features to be included

Initially, I considered incorporating several features into the game, inspired by the typical process of arranging elements on a grid.These features revolve around the manipulation of information and the actions involved in organising it effectively.

However, to maintain flexibility and adaptability, I decided to represent these actions using shapes, specifically squares and rectangles akin to those found in low-fidelity wireframes.

The key features I envisioned for the game include:

- ***Chunking or Collecting:*** Players gather elements or shapes, akin to collecting information, preparing them for placement on the grid.

- ***Aligning:*** Once shapes are collected, players aim to align them according to a predefined grid, mimicking the process of aligning information on a layout.

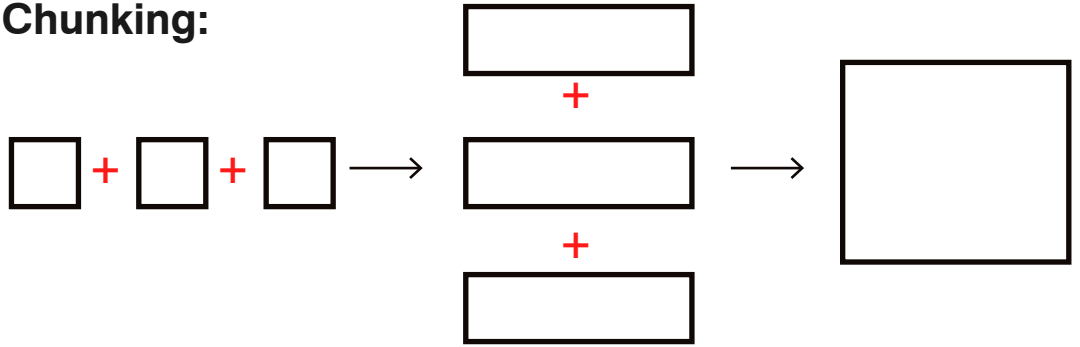
- ***Breaking:*** In cases where adjustments are necessary, players can break larger shapes into smaller ones, reflecting the need to refine or modify information.

- ***Moving:*** Players have the freedom to move shapes around the grid, simulating the process of repositioning elements within a design.

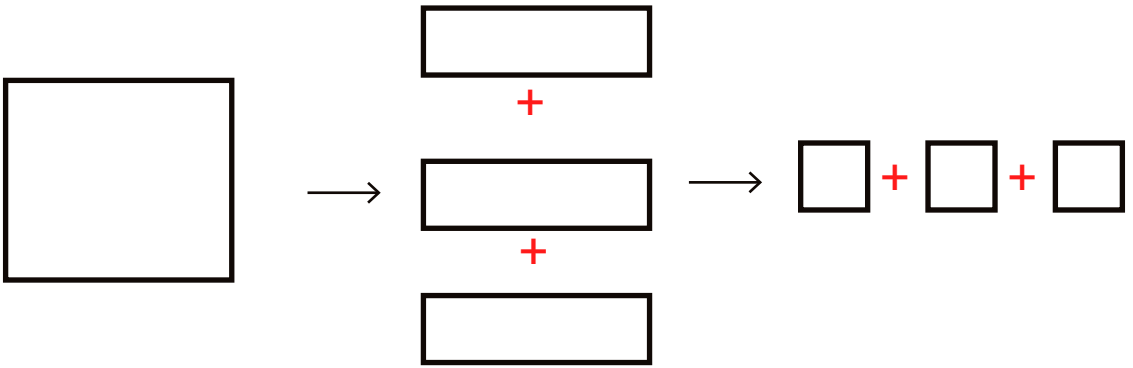
- ***Removing:*** Unnecessary elements can be removed or discarded, mirroring the practice of eliminating irrelevant information to streamline the layout.

These features aim to capture the essence of the design process while providing players with engaging and strategic gameplay mechanics.

Chunking:



Breaking:



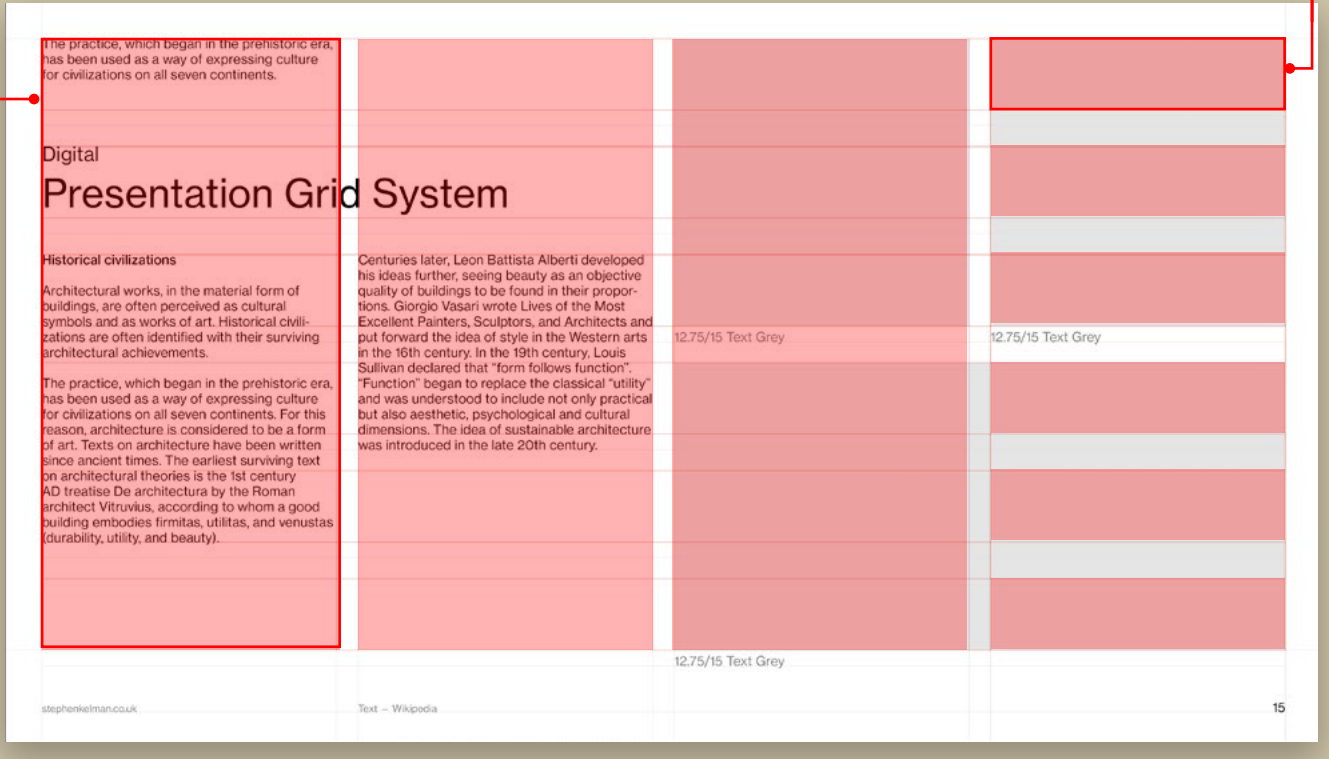
Anatomy of Grid

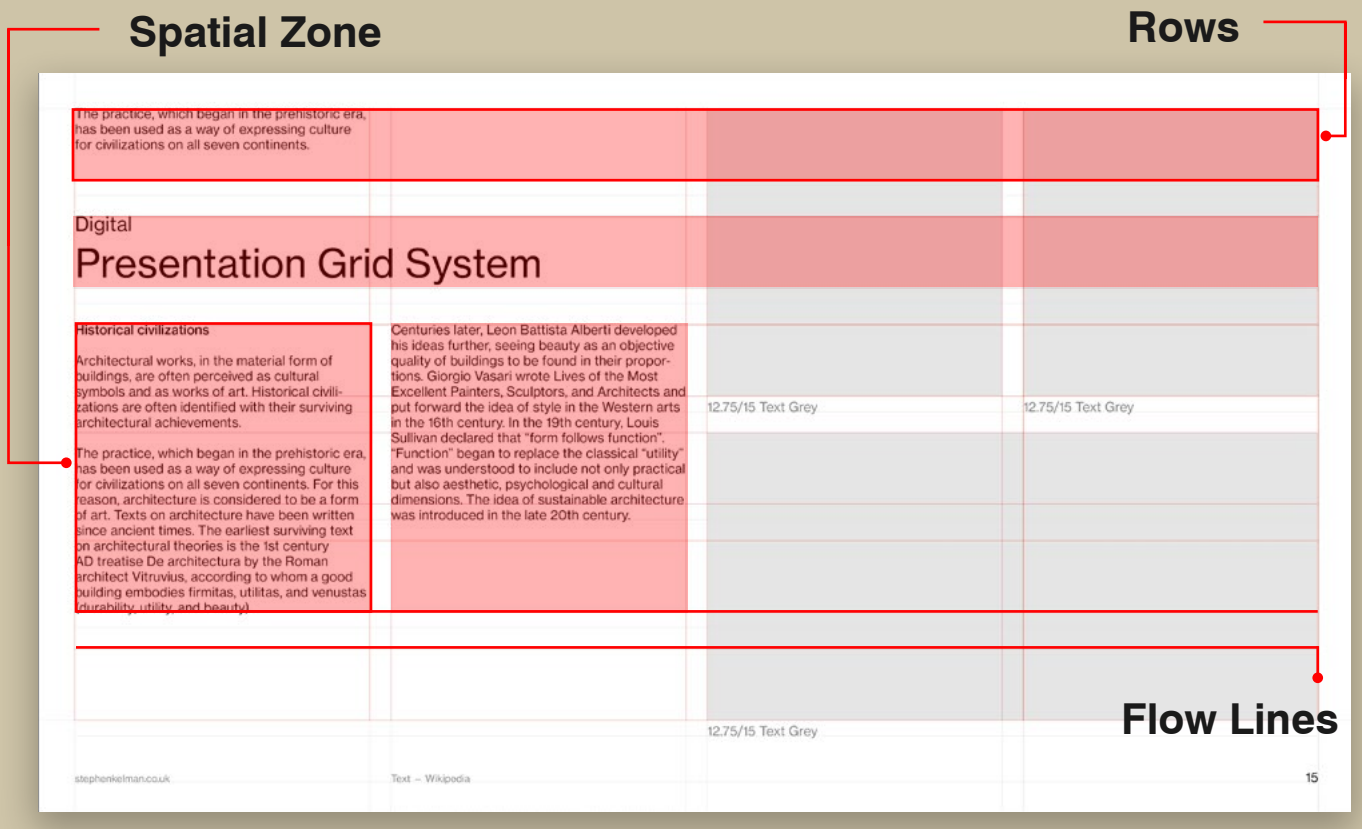
The anatomy of a grid is made up of several parts, including frame, flowlines, modules, spatial zones or regions, columns, rows, gutters and markers.

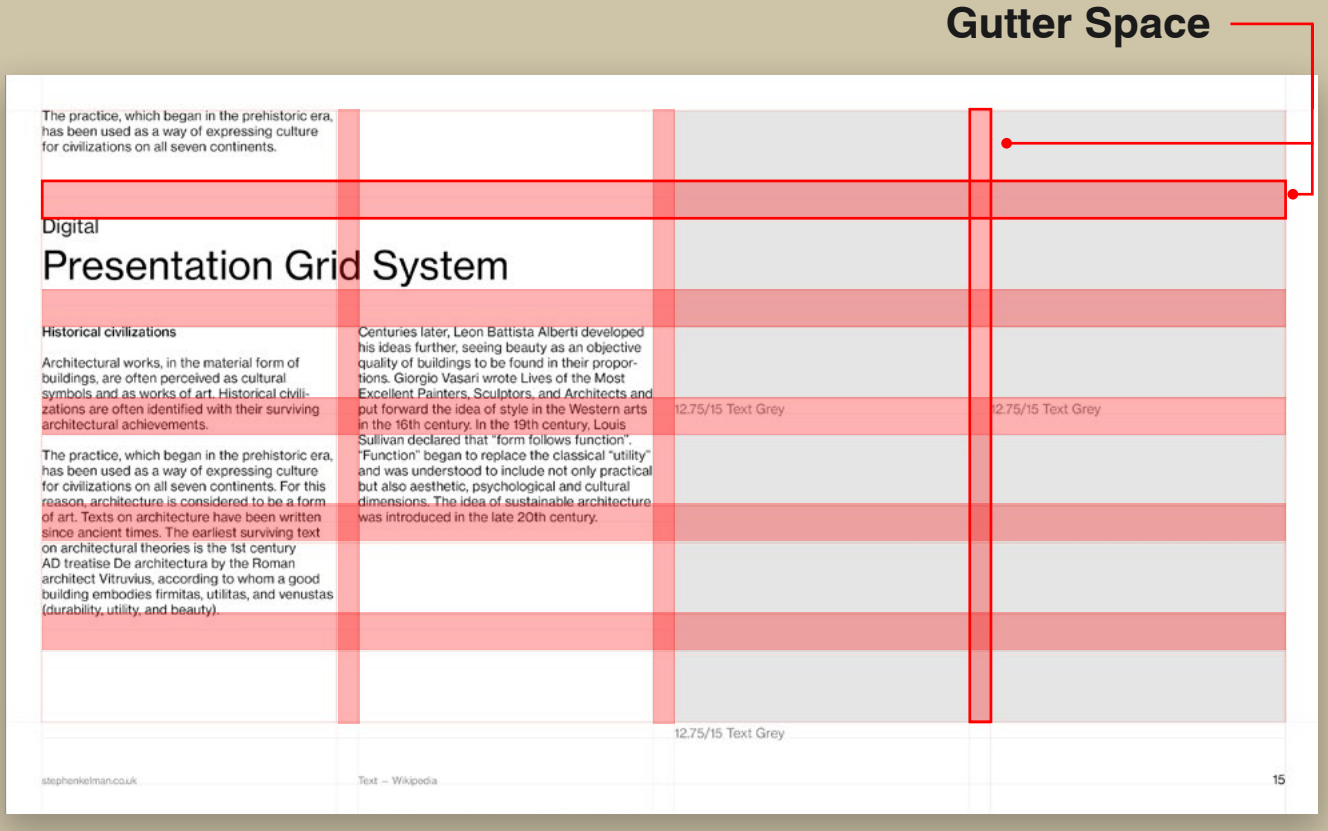
- **Columns** are the vertical equivalent of a row. It's the space between two vertical grid lines.
- **Gutter space** is the negative space between columns and their width should be a multiple of the base unit. It provides breathing room for your content and improve readability.
- **Margins** are the negative space between the edge of the outside column and the frame. It separate the grid from the outer edges of the overall layout.
- **Rows** refers to a horizontal line or track within a grid layout. It's essentially the space between two horizontal grid lines.
- **Modules** are the rectangular areas created by the intersection of a row and a column. These are the basic units where your content goes.
- **Spatial zones** are groups of adjacent modules in vertical and horizontal areas create spatial zones or regions.
- **Markers** are the specific points within the grid used for alignment or reference.
- **Flowlines** are the horizontal lines act as subtle visual cues, suggesting where the reader's eye should move next.

Columns

Modules




Spatial Zone
Rows
The practice, which began in the prehistoric era, has been used as a way of expressing culture for civilizations on all seven continents.
Digital
Presentation Grid System
Historical civilizations
Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. Historical civilizations are often identified with their surviving architectural achievements.
The practice, which began in the prehistoric era, has been used as a way of expressing culture for civilizations on all seven continents. For this reason, architecture is considered to be a form of art. Texts on architecture have been written since ancient times. The earliest surviving text on architectural theories is the 1st century AD treatise De architectura by the Roman architect Vitruvius, according to whom a good building embodies firmitas, utilitas, and venustas (durability, utility, and beauty).
Centuries later, Leon Battista Alberti developed his ideas further, seeing beauty as an objective quality of buildings to be found in their proportions. Giorgio Vasari wrote Lives of the Most Excellent Painters, Sculptors, and Architects and put forward the idea of style in the Western arts in the 16th century. In the 19th century, Louis Sullivan declared that "form follows function". "Function" began to replace the classical "utility" and was understood to include not only practical but also aesthetic, psychological and cultural dimensions. The idea of sustainable architecture was introduced in the late 20th century.
12.75/15 Text Grey
12.75/15 Text Grey
12.75/15 Text Grey
Flow Lines
stephenkelman.co.uk
Text – Wikipedia
15


Gutter Space
The practice, which began in the prehistoric era, has been used as a way of expressing culture for civilizations on all seven continents.
Digital
Presentation Grid System
Historical civilizations
Architectural works, in the material form of buildings, are often perceived as cultural symbols and as works of art. Historical civilizations are often identified with their surviving architectural achievements.
The practice, which began in the prehistoric era, has been used as a way of expressing culture for civilizations on all seven continents. For this reason, architecture is considered to be a form of art. Texts on architecture have been written since ancient times. The earliest surviving text on architectural theories is the 1st century AD treatise De architectura by the Roman architect Vitruvius, according to whom a good building embodies firmitas, utilitas, and venustas (durability, utility, and beauty).
Centuries later, Leon Battista Alberti developed his ideas further, seeing beauty as an objective quality of buildings to be found in their proportions. Giorgio Vasari wrote Lives of the Most Excellent Painters, Sculptors, and Architects and put forward the idea of style in the Western arts in the 16th century. In the 19th century, Louis Sullivan declared that "form follows function". "Function" began to replace the classical "utility" and was understood to include not only practical but also aesthetic, psychological and cultural dimensions. The idea of sustainable architecture was introduced in the late 20th century.
12.75/15 Text Grey
12.75/15 Text Grey
12.75/15 Text Grey
stephenkelman.co.uk
Text – Wikipedia
15

Column Grid

Column grids are used to organize elements into columns. Magazines use column grids to place the text in easy-to-read sections.

Manuscript Grid

OUTRO

CONSIGLIERE: THE UPDATED FUTURE

"In updating the outro, is there anything you'd want me to comment on?", I asked Freddie already knowing they'd want me to comment on their self-proclaimed and often recited success story. Don't mind if I do.

A few years ago at an after-work and catch-up session, which was pretty common back then, with no other obligations but ourselves and our desire to dream big and get drunk (not sure about the order of those things though), we were talking about living the lives of rock stars, how we would only fly business class between the boardrooms to meet our clients all over the world. Clients would be lined up for years, as we were only taking on five unique clients a year.

Realising he was still couch surfing friends' places and not being nearly as successful as he thought he'd be at the time, Freddie got into his whining mode. Magnus caught on. Magnus didn't want to do anymore design work, he had done enough, and also he'd rather be out with clients and *"building concepts of great things"*. Erik wanted to recruit an assistant to help out with the planning and office management. But, as a first step towards greatness, they all agreed that they needed to raise their salaries to be able to live respectable lifes. Remember, this was back when Snask consisted of the trio plus some loosely affiliated talents.

Knowing the current P&L (look it up!) would never support these honest but equally immature needs, I figured this was my chance to imprint something.

I took a theatrical stance. I was disappointed in what I was hearing. *"Do you expect fame and riches to come without grinding?"*, I asked, not even waiting for a reply. I continued, *"I hate to disappoint you, you 'rock stars', but what you're saying is just unheard of, no one can expect to get that for free. You have barely started out. Freddie, you need to get used to not having your own place; Magnus, we can't afford to lose you as a designer; and Erik, you need to get better administrative routines. In five years you'll all have your own apartments, more designers and we might hire an assistant."*

From what I recall, it got kind of nasty, as I easily get carried away when I have one too many drinks! That night continued in a less cheery mode. On one hand I was worried I had ruined the mood, on the other I hoped I had imprinted something.

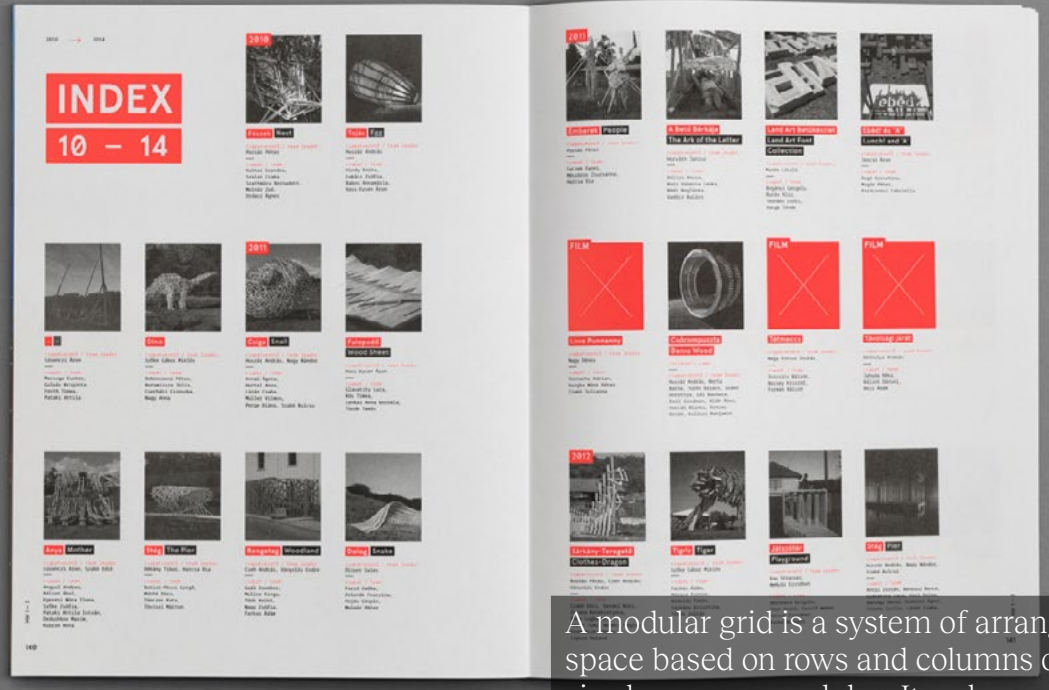
The future would give me the answer.

Since that night, I've never heard the guys (and eventually even girls) complain of shit that needs to be done, of the everyday grinding. We have learnt that success never happens overnight, and not to expect it, as you'll only be disappointed. Even though you might see yourself as a rock star of your trade, who may or may not deserve a breakthrough, that eventual shift is presupposed by everything you've done up to that moment. All setback, grit and enemies you made for being you will eventually constitute the platform from which you make it.

Looking back on these years, so much has happened. I'm both proud (not in a creepy fatherly way) and a bit scared of the dedication and hard work these guys have put into building the Snask company and lifestyle surrounding it – always staying true to their beliefs; never retreating or flinching. Today, we all have our own apartments (god bless the low interest rates), we have hired 6 or so more people so that we now have the luxury of working in a more focused way, leveraging our individual strengths.

The manuscript grid is a one-column grid. It helps you determine the right place of putting text on a page.

Modular Grid



A modular grid is a system of arranging objects in space based on rows and columns of a specified size known as modules. Its where units of contents, such as text blocks, headlines, inserts, and images, can be placed.

Baseline Grid :

The baseline grid provides you with a series of equally-spaced horizontal guides that make it easy to perfectly cross-align body copy between frames and columns across your whole document.

Bombay Board Game Club

I visited this place after I tested prototype 1-3 to explore some similar games.

The Bombay Board Game Club, which was founded by Chai & Games, a board game company based in Mumbai is a cafe that provides a cosy setting where you can play contemporary board games for hours on end. It is a nice opportunity to socialise with other board game lovers or spend quality time indoors with your friends.

It was suggested that I check into games like *Project L, Patchwork, Canvas, and Blokus* to learn more about their spatial arrangements, dynamics, gameplay, and other elements.

01. Project L

Age: 8+ Years *Players:* 1 to 4 Players *Time:* 20-40 Minutes

Game Play:
The game's central concept is that players utilise plastic-shaped pieces to finish puzzle cards. Completing a problem offers you points for the end-game score and a bonus piece. Used parts are returned to the supply for use in future puzzles. On their turn, players can select a puzzle tile, a level one piece, an upgrade, or a component to place on a puzzle tile.

Observations Made:
Shapes were categorized into distinct levels, allowing for progression and complexity in gameplay. Players had the opportunity to upgrade and swap shapes within the same level, adding depth to the strategic options available. The game provided players with the chance to explore multiple puzzles, offering variety and challenge.
However, there was minimal interaction between the players, leading to a solitary experience rather than a competitive game environment.

02. Blokus

Age: 7+ Years

Players: 2 to 4 Players

Time: 20 Minutes

Game Play:
Players take turns placing pieces on their board, each starting from their corner. Each new piece must touch at least one other piece of the same color, but only at the corners! The goal is to get rid of all your pieces. The game ends when all players are blocked from laying down any more of their pieces.

Observations Made:
The game allows multiple players to participate on a single board simultaneously, fostering a dynamic and interactive gameplay experience. Different shapes are strategically placed, leading to ever-changing gameplay dynamics with each turn. Despite its simplicity and one central condition, “Blokus” successfully captivates and engages all players involved.

03. Patchwork

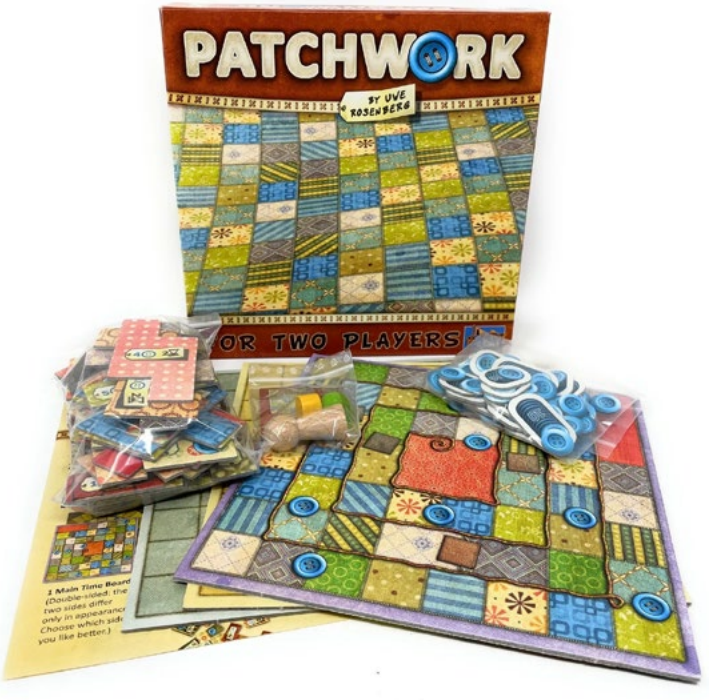
Age: 8+ Years

Players: 2 Players

Time: 30 Minutes

Game Play:
In “Patchwork,” each player builds a quilt on a 9×9 board using patches. Players earn and spend buttons to place patches, moving their time token forward. Special patches and buttons provide points. The game ends when both players reach the last space, and the player with the most points wins.

Observations Made:
Players strategically select and place patches on a quilt board, balancing resource management with spatial planning. Turns are determined by player position on a track, encouraging efficient moves. The game emphasizes filling the board while managing limited resources, creating a compelling blend of strategy and competition.



04. Initial Ideations

After completing the online course present on Swayam Portal on ***Demystifying Board Game Design by Prof. Uday Athavankar.*** I began my initial brainstorming with an assignment provided by Prof. Prasad in the first semester module on typography and layout. This task required organising various forms, such as rectangles, squares with variable dimensions, and a circle, into a composition.
Later, we replaced such forms with text boxes and graphics, resulting in unique compositions. I had a great time doing this activity, and it has stayed with me ever since.

Base of the Game :
Inspired by this experience, I began to develop my basic activity into a game based on this specific concept. I envisioned a two-player game in which each player is given their own board with a pre-existing grid and a collection of forms. Players would take turns arranging the shapes on the board to create something.

To be figured out:
At this stage, I was uncertain about how the game would end, what the players would create, and how the conflict or interaction between the players would unfold.
However, I was certain that the game's foundation would be abstract and related to arrangement and alignment.

Prototype 1

User: Design Beginners

Players: 2 Players

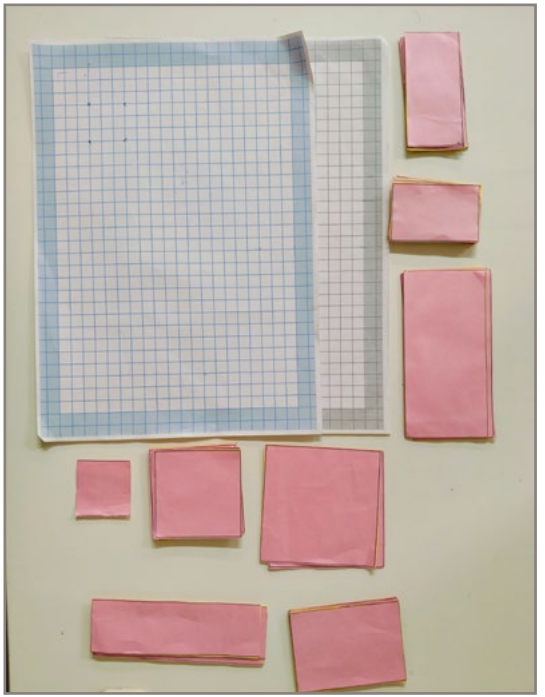
Time: 30 Minutes

- *Game Elements:*
  Shapes: Squares and rectangles of varying sizes
  Board: Gridded board for each player
  Dice: Two dice
  Composition Cards: Layout printed on cards

- *Game Play:*
  Each player receives one composition card. Players take turns rolling the dice to determine the shapes they can pick up. Based on the dice roll, players select shapes to place on their board.

  Objective: The goal is to replicate the composition shown on the card on their own board.

  Winning Condition: The first player to complete their composition accurately wins the game.



Observations:

- The initial prototype felt more like an activity than a game, there was no learning as players had to replicate the layout madeup on cards.
- It lacked player interaction and had no elements of conflict.
- Additionally, there was insufficient planning regarding the process of picking up shapes and determining the game's duration and flow.

Enhancements:

- Instead of a 4×4 grid, I used a graph paper-like grid with little 36×24 modules.
- Small 1×1 square shapes or tokens were added to create ambiguity when generating shapes; earlier, players just put pre-formed shapes. Now, players must roll the dice to collect tokens and put them next to each other to transform them into forms.
- I also introduced dice mechanics: when the orange die lands on a 1, players can remove tokens from their opponent and add them to their own. When the green die rolls a one, players can place random tokens on their opponent's board. Another die roll determines how many removals and additions are made.
- I was unsure about the quantity of shapes required and how to eliminate the composition/layout card while incorporating a learning element. As a result, I focused more on gameplay, striving to make it engaging and enjoyable.

Prototype 2

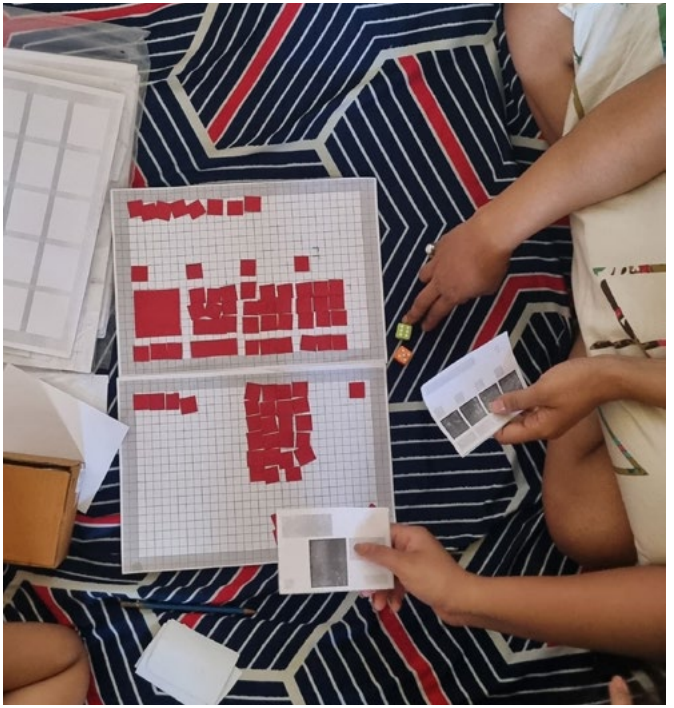
User: Design Beginners *Players:* 2 Players *Time:* 30 Minutes

- *Game Elements:*
  Shapes: Small tokens (1×1 shaped square)Squares & rectangles of varying sizes
  Board: Grided board for each player (A4 size)
  Dice: Two dice
  Composition Cards: Layout printed on cards

- *Game Play:*
  - Each player receives one composition card.

  - Players take turns rolling the dice to determine the tokens they can pick up and upgrade them to place the shape.

  Winning condition: The goal is to replicate the composition shown on the card on their own board. The first player to complete their composition accurately wins the game.



Observations:

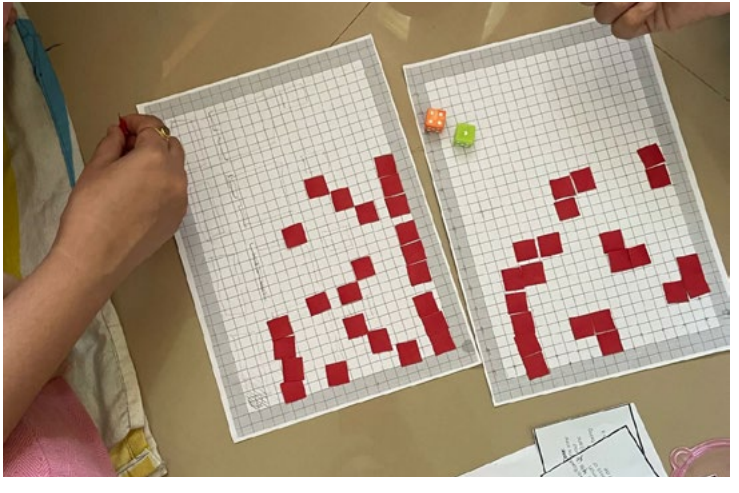
- Players enjoyed adding or removing each other's tokens, enhancing interaction and conflict.
- Players focused mainly on replicating the card composition, which limited their creativity.
- The game was overly dependent on luck, with some players receiving simpler layouts, leading to unfair play.
- Players struggled to visualize the card layout and the corresponding area on the board.
- Shapes were not properly dimensioned or aligned with the card and board, causing confusion.

Enhancements:

- Still not able to think of how to remove layout cards.
- Changed A4 size board for both the players from graph grid into structered 12×8 column grid.
- Made shapes accordingly that were fitting into the 12×8 grid.
- Also introduced special cards to give advantages to both players and they can play those powers to take advantage.
  Eg. Lock a zone - You can protect your placed shapes or tokens avoiding from taking opponent, Take a shape - Players can take up to 12 tokens, Double your points etc.

Suggestions or Feedback after Playtesting:

- There should be some identity given to composition cards, currently these are just shapes.
- How to incorporate the elements where while working designer switch on and off the grid visibility ?
- Could some narrative be introduced around the game?
- Can ‘communication limits’ be introduced ? Gutter space and other rules be communicated in codes by players to each other.
- Try to make both the players play on single board.
- Introducing 2 different colors for both the players. Reduce/remove the cards.
- One person placing shapes other gutter space.



Enhancements:

- Introduction of “Brief Cards” containing design briefs, prompting players to create layouts based on these specifications. The aim was to simulate the ambiguity often found in real client briefs. Removed special condition cards.
- Elimination of special condition cards, streamlining gameplay and focusing on design challenges.
- Implementation of two sets of shapes, each with distinct colors, facilitating easier identification of each player’s pieces.
- Introduction of grid cards printed on tracing paper, which corresponded with composition cards.
- These grid cards provided specific grid layouts for players to follow while creating their designs.
- Composition cards were retained solely for reference purposes, paired with design briefs to provide players with additional guidance.
- Each player received a set comprising a Design Brief, a Composition Card, and a Grid Card, enhancing the clarity of objectives and the structure of gameplay.
- Goal is that every time each player will explore different layout for every brief and if needed they can take a peak in composition card.
- Whoever completes first wins.

Changing the game board to Modular Grid for:

- *Enhanced Visualization and Consistency:* A modular grid ensures a clear, organized layout, allowing for consistent alignment of elements and a balanced overall design. In "Tactical Tile," this helps players visualize and place shapes accurately, making the gameplay intuitive and structured.

- *Flexibility and Scalability:* Modular grids are adaptable, supporting various layouts and formats. This flexibility allows game to accommodate different board sizes and ensure each game session is unique and adaptable.

- *Efficiency and Productivity:* Using a modular grid streamlines processes, saving time and maintaining consistency. In game the grid structure speeds up gameplay, enabling players to quickly place and upgrade tokens without confusion, resulting in a smoother and more engaging experience.

Prototype 3

 *User:* Design Beginners

 *Players:* 2 Players

 *Time:* 30 Minutes

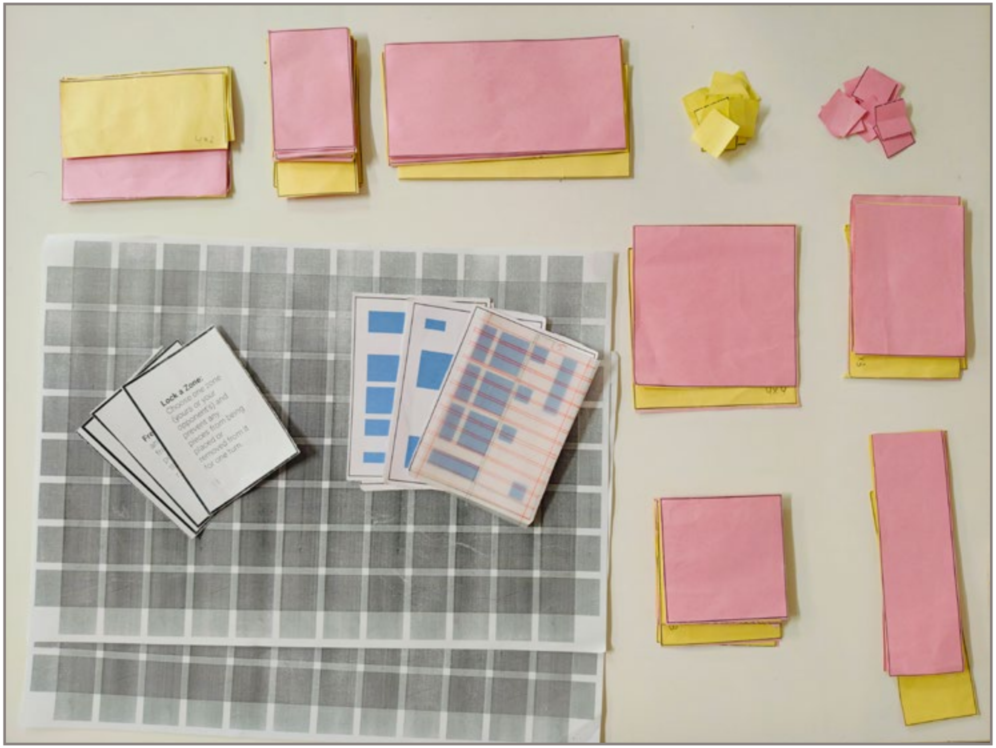
- *Game Elements:*
  Shapes: Small tokens (1×1 shaped square)Squares & rectangles of varying sizes
  Board: Grided board for each player (A4 size with 12×8 column)
  Dice: Two dice
  Design Brief + Composition card + Grid Card

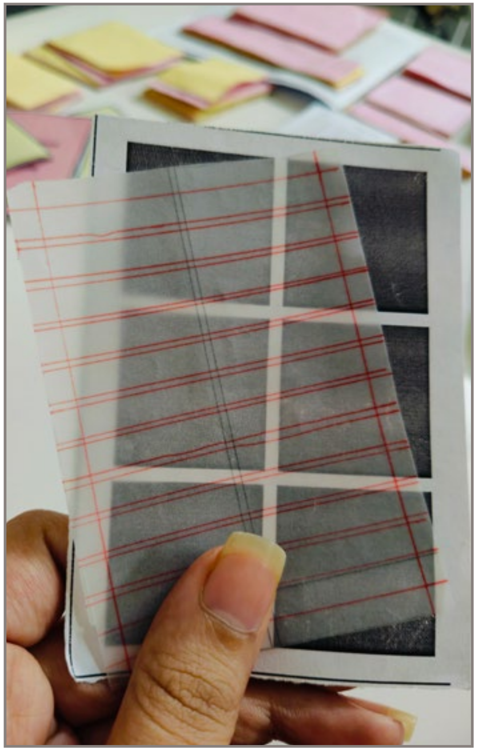
- *Game Play:*
  - Each player receives one Brief Card, while the paired Grid and Composition Cards are kept face down.
  Eg. Both players receive the same brief, such as designing an index page for 5 pieces of content.

  - Players roll the dice and strategize on how to place their tokens and shapes to fulfill the requirements of the design brief.

  -The rules for removing and adding tokens from the opponent remain the same as in earlier prototypes.

  - The player who completes their layout first, according to the design brief, wins.


Lock a Zone:
Choose one zone (yours or your opponent(s)) and prevent any pieces from being placed or removed from it for one turn.



Observations:

- One player was diligently working on creating a proper layout, while the other simply placed five tokens and a few shapes and then declared the game over.
- There was no clear criteria to evaluate which player created the better layout.
- Players were uncertain about when they could refer to or check the reference composition.
- There was ambiguity regarding the level of detail that should be included in the design brief.

Feedback Received:

- The game is attempting to cover too many concepts simultaneously, making it challenging to focus on specific learning outcomes.
- Layout and aesthetic principles are subjective and difficult to measure or judge objectively within the game.
- It's advisable to concentrate on a single concept and develop the game around that.
- Begin with lower-level cognitive skills such as remembering, identifying, and understanding, rather than higher-level skills like analyzing, evaluating, and creating.

So this time I tried testing just arrangment of shapes and made a single 12×12 column grid board to test the game play.

Prototype 4

 *User:* Design Beginners

 *Players:* 2 Players

 *Time:* 30 Minutes

- *Game Elements:*
  Shapes: Small tokens (1×1 shaped square)Squares & rectangles of varying sizes 3×1, 4×1, 3×2, 4×2, 4×3 rectangles; 2×2, 3×3, 4×4 squares.
  Board: One board with 12×12 grid.
  Dice: Two dice

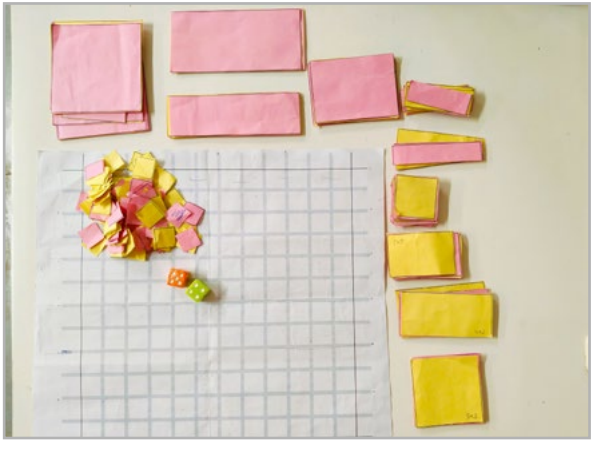
- *Game Play:*
  - Distribute base tokens equally to each player.

  -Players roll the dice and place tokens on the board accordingly, upgrading them into shapes.

  -A player who places the last token to complete a shape or who uses previously placed opponent tokens can take over the opponent's shape. They do this by removing the opponent's token and replacing it with their own shape, increasing their count on the board.

  -Each shape placed must be aligned on at least three sides, either with other shapes or with the margin.

Winning Condition: The player with the most shapes aligned on the board at the end of the game wins.



Observations:

- There was minimal interaction or conflict between the players as they mainly focused on creating their own shapes, resulting in the board being divided into two separate colored regions.

- The base tokens distributed to both players totaled 144, which matched the total modules on the 12×12 board. Consequently, players were filling up the board entirely, creating large clusters of shapes.

- There was no clear principle or concept behind the condition of aligning the shapes.

- Players were more focused on disrupting their opponent's shapes and taking over them, rather than working on their own creation alignment of shapes.

Enhancements:

- To encourage players to leave some breathing space and focus on alignment rather than just creating bigger shapes, I considered introducing a rule allowing players to move shapes that are not aligned.

- To prevent players from filling up the entire board, I experimented with several options:
  - Awarding points for remaining tokens.
  - Dividing the board into zones.
  - Requiring say 'n' modules to be left empty.

- Despite these attempts, players continued to place and cluster shapes excessively.
  Finally, I reduced the number of tokens to a total of 80, distributing 40 to each player, ensuring they would not fill up the board completely, which somehow worked.

- Took some reference from ***"Project L"*** divided shapes into different levels.

What more could be done?

I intended to create a method that allowed participants to choose or decide on a grid by combining or dividing what was available on the board. The board serves as a tool for placing shapes and defining areas of similar module sizes. I needed a condition that would prompt players to recognise a pattern or grid and explore its alignment and arrangement.

In interviews with first-year M.Des. students who had taken a “Grid System” module, they mentioned learning about using the smallest image to determine a grid for an entire page. Although this concept isn’t a standardised rule in design theory, it aligns with some principles of idea, I decided to implement it in my game. grid-based design, particularly those emphasising modularity and flexibility. Inspired by this idea, I decided to implement it in my game.

How does it help?

- Modular Design Principles: In modular design, breaking down a composition into smaller, repeatable units (modules) helps in maintaining consistency and alignment throughout the design.

- Scalability: By defining the grid using the smallest element, you allow for scalable and proportionate layouts. This approach ensures that all elements, regardless of their size, fit within the overarching grid structure, maintaining harmony and balance.

- Flexibility: Starting with the smallest unit makes the grid adaptable to various content sizes. Designers can combine multiple small units to create larger modules, providing flexibility in how they structure the layout.


BYU SCHOOL OF MUSIC PRESENTS
SYNTHESIS
SATURDAY, NOVEMBER 23
7:30 PM | $10
DE JONG CONCERT HALL
FEATURING GUEST ARTISTS:
WYCLIFFE GORDON
MILES DAVIS
DIZZY GILLESPIE
JOHN COLTRANE
DIRECTED BY RAY SMITH
BYUarts
(801) 422-2981
BYUARTS.COM


Smallest Image
BYU SCHOOL OF MUSIC PRESENTS
SYNTHESIS
SATURDAY, NOVEMBER 23
7:30 PM | $10
DE JONG CONCERT HALL
FEATURING GUEST ARTISTS:
WYCLIFFE GORDON
MILES DAVIS
DIZZY GILLESPIE
JOHN COLTRANE
DIRECTED BY RAY SMITH
BYUarts
(801) 422-2981
BYUARTS.COM

While there isn't a direct rule stating "the grid should be decided by the smallest element present," the idea is supported by related design concepts:

- ***Ethan Marcotte's "Introduction of Responsive Design Principles"*** emphasizes flexible grids that adapt based on the smallest screen size, ensuring elements resize and reposition fluidly.

- ***Josef Müller-Brockmann's "Grid Systems in Graphic Design"*** discusses how modular grids help in organizing information clearly and consistently, where starting from smaller units provides structure to larger compositions.

Example Application in Design:

- Typography: In web design, the baseline grid is often determined by the smallest type size. All other text sizes and spacing are then aligned to this baseline grid to ensure consistent vertical rhythm.

- Web and UI Design: Grid systems like Bootstrap use a 12-column grid system where the smallest unit is one column. Designers can then combine these columns to create layouts of various widths that are proportionally aligned.

Inspirations taken :

- *Retained 12×12 Grid Board:* I kept the game board as a single 12×12 column grid, continuing the structure I had already established.

- *Dual-Colored Shapes:* I made all the shapes dual-colored, anticipating a mechanism that involves collecting and placing shapes back. This would allow players to re-place shapes as their own.

- *Incorporating Smallest Image Concept:* I tried to integrate the concept of using the smallest image to determine the grid.

Prototype 5

User: Design Beginners

Players: 2 Players

Time: 60 Minutes

- *Game Elements:*
  Shapes: Small tokens (1×1 shaped square)Squares & rectangles of varying sizes 3×1, 4×1, 3×2, 4×2, 4×3 rectangles; 2×2, 3×3, 4×4 squares.
  Board: One board with 12×12 grid.
  Dice: Two dice

- *Game Play Overview:*
  The game is designed to simulate the process of gathering information, arranging it, and refining it by discarding unnecessary elements or breaking it into smaller parts.

  Goal: The objective is to align the shapes correctly according to the new grid. The player who aligns more shapes and has a more organized board layout wins the game.

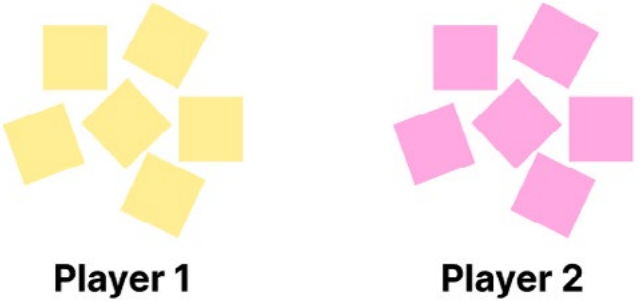
- **STAGE 1:**
  Each player starts with an equal number of tokens.
  Players have 3 actions per turn:
  - Roll the dice.
  - Place consecutive tokens on the board.
  - Upgrade tokens into larger shapes.

  Upgrading and Interaction: Players can take over the opponent's shapes or form shapes from the opponent's placed tokens, which adds a competitive element. Collected tokens or smaller shapes are kept for use in Stage 2.

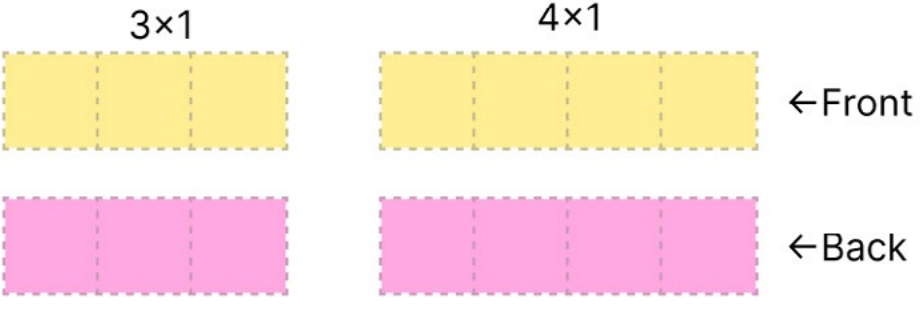
  End of Stage 1: When one player runs out of base tokens, the board's current arrangement is frozen, and no further placements are allowed. The player with remaining tokens discards them.

- **STAGE 2:**
  Determining the Grid: Both players identify the smallest shape on the board. For example, if the smallest shape is a 3×2 rectangle, this shape's dimensions determine the new module size for the entire grid. The grid is then visualized as a 4×6 grid (12/3 and 12/2).

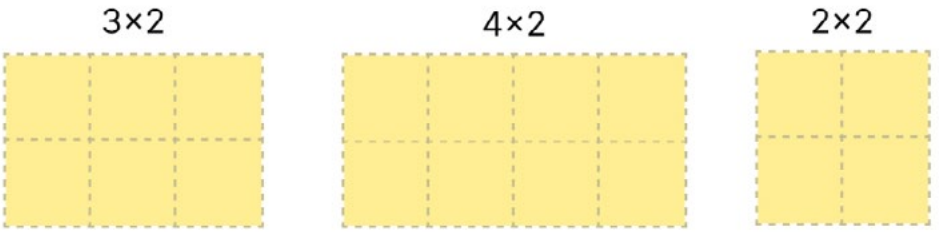
Base tokens



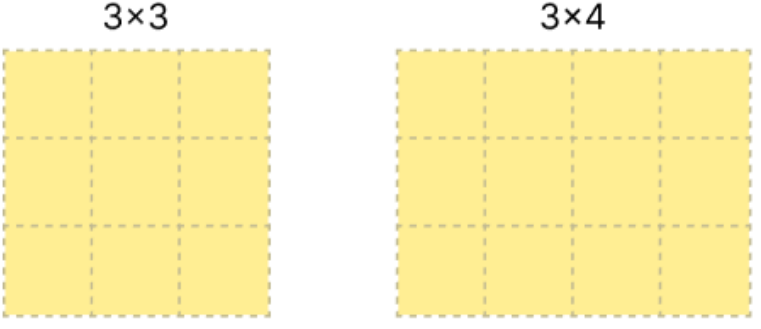
Level 1 Shapes



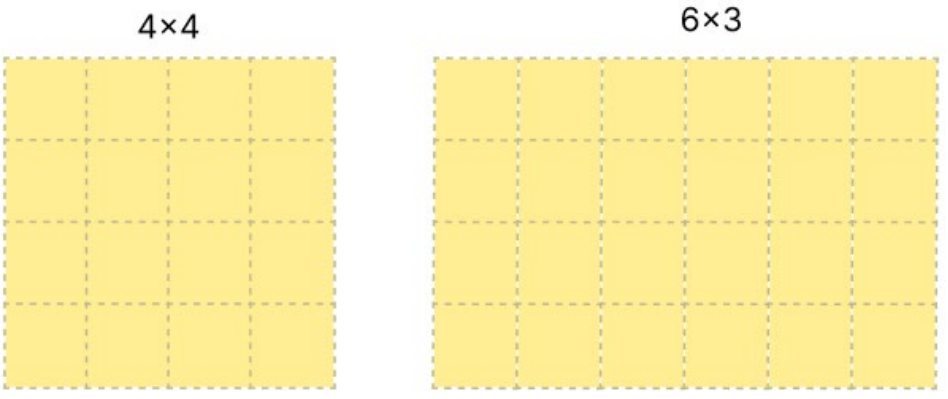
Level 2 Shapes



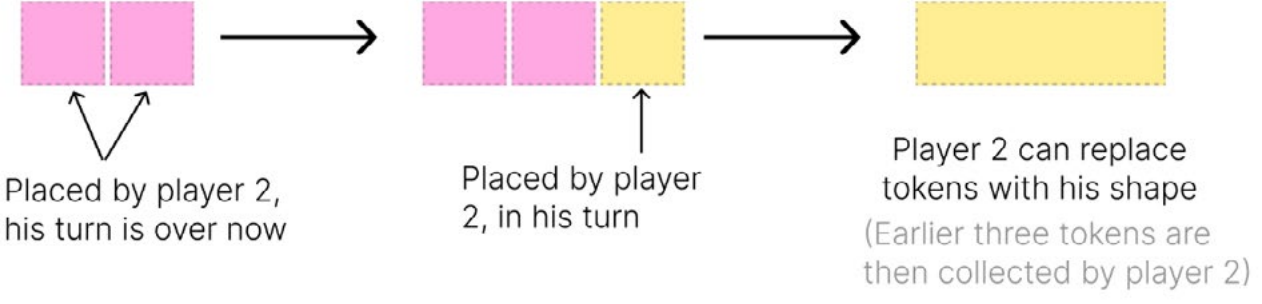
Level 3 Shapes

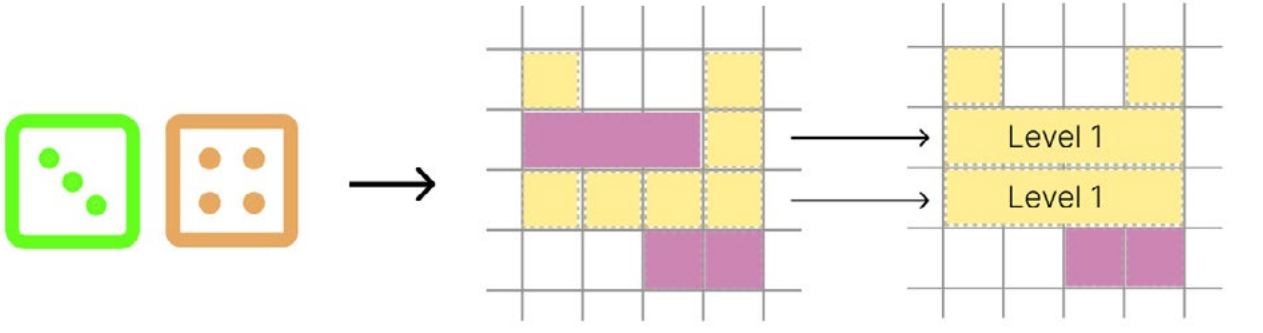


Level 4 Shapes



Planned Interactions

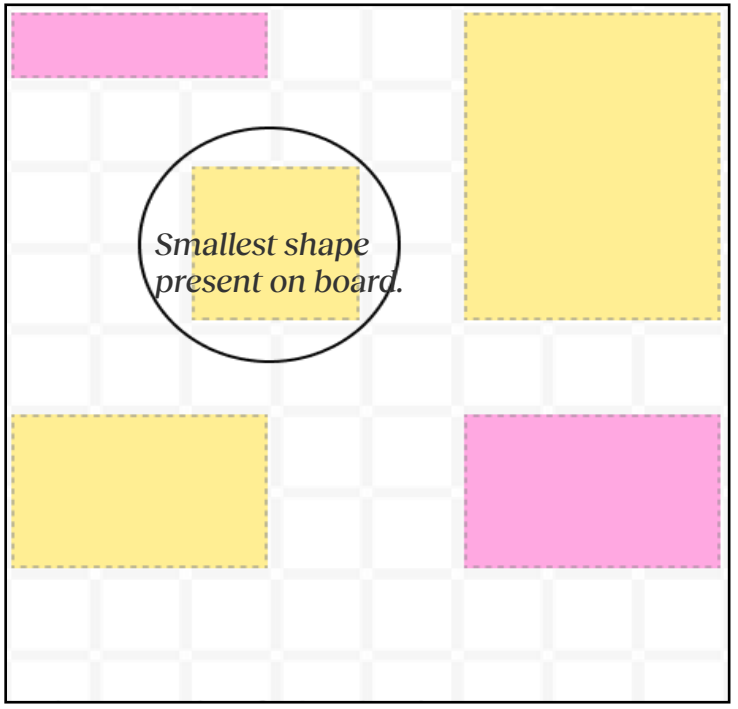




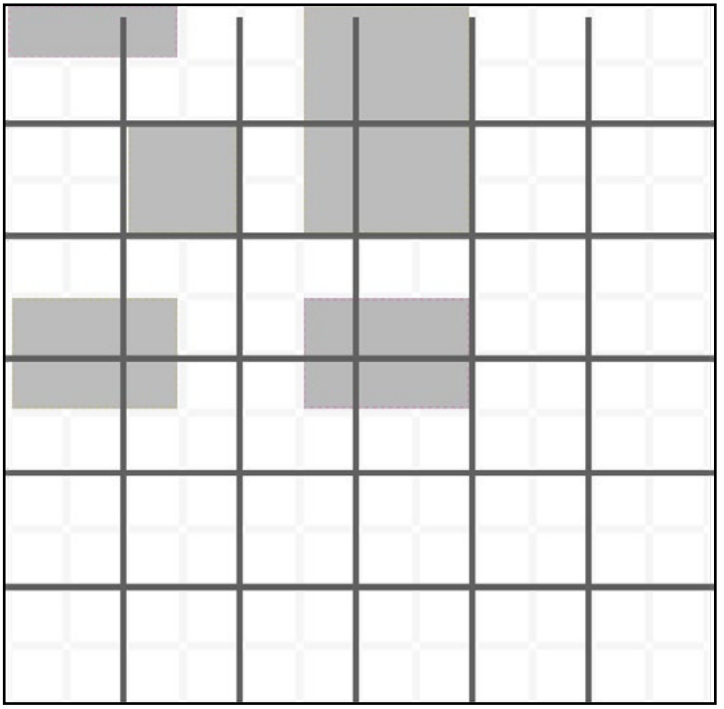
Rolled the dice

Placed the tokens adjacent to opponents

Collected shapes/ tokens in fig 3. and placed his three level 1 (4×1) shapes on board



For eg. After stage 1, above is the arrangement on board. 2×2 square is the smallest shape.



Players need to visualise the 12×12 grid board into the grid (area covered by 2×2 square) i.e. 6×6.

Rearranging: Players move and align their shapes according to the new grid. They can break shapes if necessary, using the smaller shapes collected during Stage 1.

Observations after Playtesting:

- *Stage 1 Engagement:* Stage 1 was tested in earlier prototypes and was found to be fun and engaging. Players enjoyed quickly forming shapes, trying to cancel the opponent's creations, and upgrading their shapes.

- *Shape Collection Issue:* Players struggled to collect a variety of smaller shapes needed for breaking down larger shapes in Stage 2, as they were more focused on forming larger shapes quickly.

- *Disconnection Between Stages:* Stage 2 was confusing and became complex due to a lack of clear rules and justification for the actions required.

- *Difficulty in Visualization:* Players had significant trouble visualizing the grid, calculating the area occupied by the smallest shapes, and dividing it according to the board's actual grid to create a new board. This difficulty was compounded by the lack of any visual guides or game elements to assist with this task.

- *Lack of Player Interaction in Stage 2:* While aligning shapes into the new grid in Stage 2, player interaction decreased significantly as players focused solely on moving or breaking their shapes.

Enhancements:

- *Shape Collection Rule Change:*

  Previous Issue: Players struggled to collect a variety of smaller shapes for Stage 2.

  New Rule: Players can only upgrade to one level up at a time after placing tokens. For creating larger shapes, players must follow a sequence: placing base tokens → level 1 shapes → level 2 shapes → level 3 shapes, and so on.

  Benefit: This ensures players collect and place shapes simultaneously, accumulating a variety of shapes in their reserve for future use in Stage 2.

- *Sequential Upgrading:*

  New Rule: When forming larger shapes, players must upgrade through each level sequentially, collecting and placing shapes at each level.

  Benefit: This methodical approach ensures that players gather a diverse set of shapes, aiding them in future gameplay stages.

- *Interaction Enhancement:*

  Previous Issue: Stage 2 lacked player interaction, with players focusing only on their shapes.

  New Rule: In Stage 2, both players can break each other's shapes if needed.

  Benefit: This rule increases interaction between players, adding a strategic element as they consider both their own and their opponent's moves.

Further Observations and enhancements:

Although players enjoyed Stage 1, I decided to retain it, despite the frequent and somewhat illogical cancellation of shapes. Player 1 could place a few tokens and replace the opponent's shapes, but both players had equal opportunities to cancel out each other's shapes.

I explored additional mechanisms to make shape replacement more logical. For instance, a player could replace an opponent's shape by placing a token or shape with a larger area. This felt more logical than simply placing one or a few tokens to take over an entire shape.

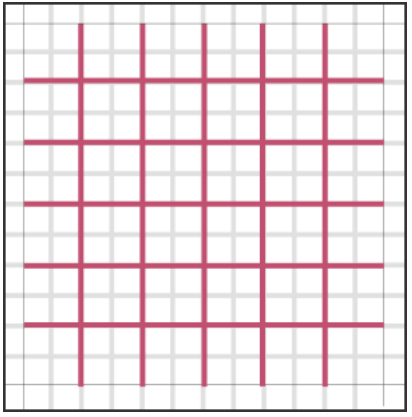
After playtesting, it was evident that Stage 2 needed further exploration or possibly a completely new mechanism. I considered what would happen if the smallest shape was removed and how different grid combinations could still be explored. To address this, I revisited the idea of using cards and dice.

- First I analysed the 12×12 grid, and that it can be divided into columns and rows of 2, 3, 4, and 6, resulting in combinations like 3×3, 4×4, 2×2, 6×6, 3×2, 4×2, 6×2, 3×4, 3×6, and 4×6.

- Also to check how many, what sizes of modules are being created.

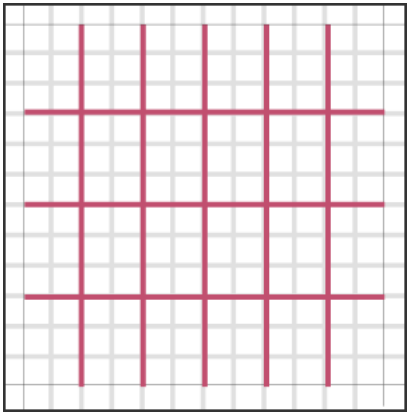
6×6 Grid

Module size: 2×2 units



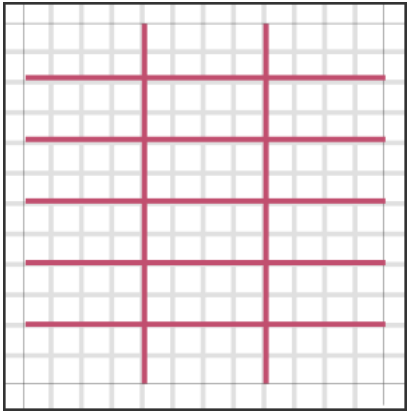
6×4 Grid

Module size: 2×3 units



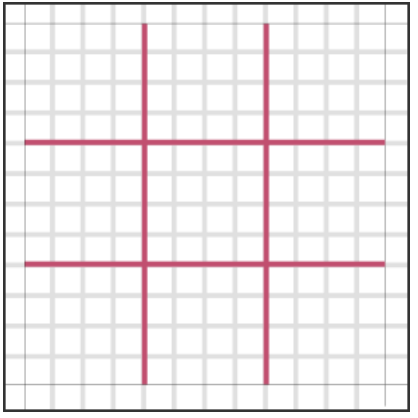
6×3 Grid

Module size: 4×2 units



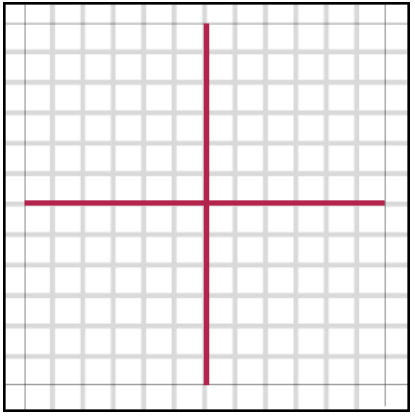
3×3 Grid

Module size: 4×4 units



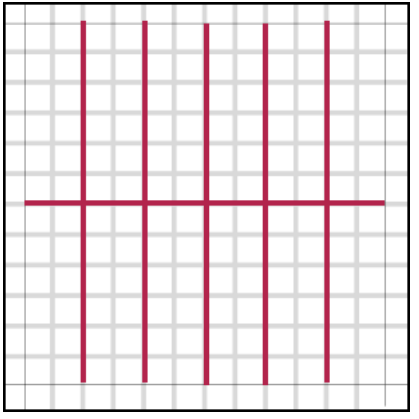
2×2 Grid

Module size: 6×6 units



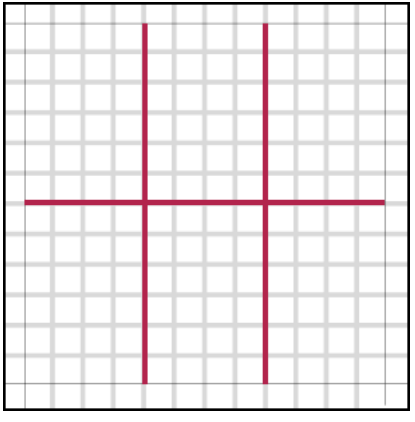
6×2 Grid

Module size: 2×6 units



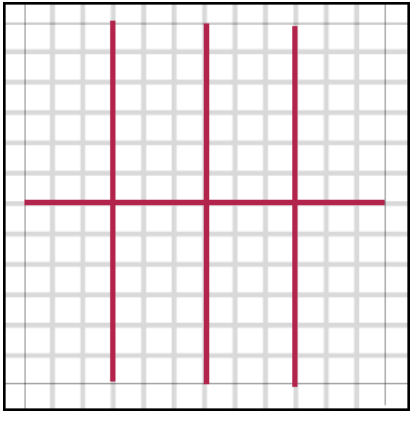
3×2 Grid

Module size: 6×4 units



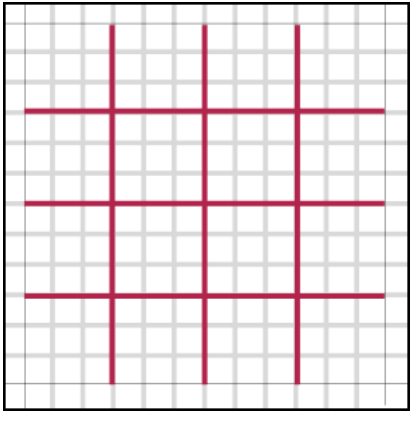
4×2 Grid

Module size: 3×6 units



4×4 Grid

Module size: 3×3 units



Prototype 6

Dice with 3,4 & 6 on its faces,
same board, same shapes, same tokens

I observed that some of the modules were very large, so I decided to remove the “2x...” grids. Instead, I considered customizing the dice to have 3, 4, and 6 on their faces, each number repeated twice. Players will each roll one die, and the resulting numbers will determine the grid of the board. Players will then compete to arrange and align the shapes provided.

There will be no stages in the game. The objective is to align the most shapes, with larger shapes scoring more points. Players will start by placing tokens and enhancing their shapes, using a “larger area place and replace or take over” gameplay mechanic to interact with their opponent.

Observations after Playtesting:

- Most of the time, the grid was coming out as 3×4, which made the grid options very limited.
- As a result, the number of tokens to be picked was also limited to 3, 4, and 6.
- Certain shapes were left untouched as they were not being formed on the board.
- The game became fast-paced, but the fun element was missing.
- It became obvious what the opponent was about to make.
- Players focused on making bigger shapes rather than aligning them to the grid.
- Shapes got stuck and were unable to move, and the mechanics for moving or breaking shapes were not considered.
- Players stuck to using whatever shapes were collected upon removal while upgrading.

Overall, the conclusion was that the game needs to be rethought.

Enhancement:

I reverted the dice back to normal. Although grids are invisible design elements, the gameplay was intended to foster an understanding of visual sensitivity.

- Despite earlier suggestions to remove cards, I reconsidered and decided that providing grid arrangement cards would offer players a visual aid, even if they still needed to visualize it on the board.

- To enhance interaction and make the game more engaging, I introduced a new rule using two different colored dice. When rolling and picking up tokens, both players must pick up tokens of both colors. They will arrange their tokens as well as their opponent's, but their score will be calculated based only on the shapes they create with their own color.

- Additionally, I changed the board from a square to a rectangle, making it 12×18. This adjustment made it easier to differentiate between rows and columns and provided more grid combinations, enhancing the gameplay experience.

This addition encourages strategic placement and introduces a new layer of fun and engagement as players can strategically place their opponent's tokens to influence the game's outcome.

Prototype 7

Two Dice,
12×18 grid board,
Same shapes,
Same tokens,
Grid cards- 3×4, 3×9, 4×6, 3×6, 6×9, 6×6, 4×9, 6×3

Game Play :
Players shuffle the grid cards and place them face down. Each player then picks one card without revealing it to their opponent. The game proceeds with players arranging, replacing tokens, and forming shapes until one player runs out of base tokens. At that point, the number of aligned shapes or filled modules is counted and scored to determine the winner.

Assumptions:
It was assumed that since neither player knows which grid the other is following, it would encourage strategic placement and strategy building.

Playtesting Results:
However, this did not happen as expected. Instead, shapes got stuck, and proper scoring was difficult to implement.
Although the dice rule was introduced to enhance gameplay, it led to more scattering of pieces, indicating that something was still missing from the game dynamics.

Prototype 8 (Final Version)

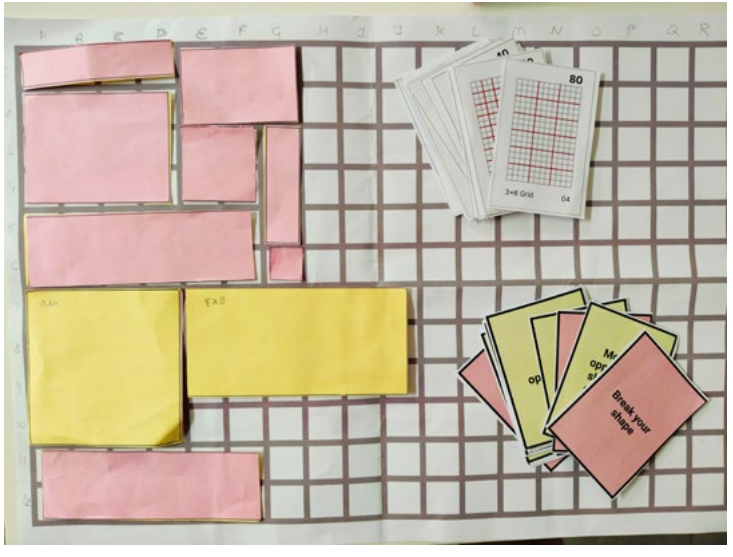
Upon further analysis of the grid cards, I decided to introduce a new mechanic to limit the number of modules to be completed.
Instead of players picking one grid card each, they would pick one card together and compete to complete the modules for that specific grid.
This change allowed players to explore multiple grid arrangements in a single gameplay session.

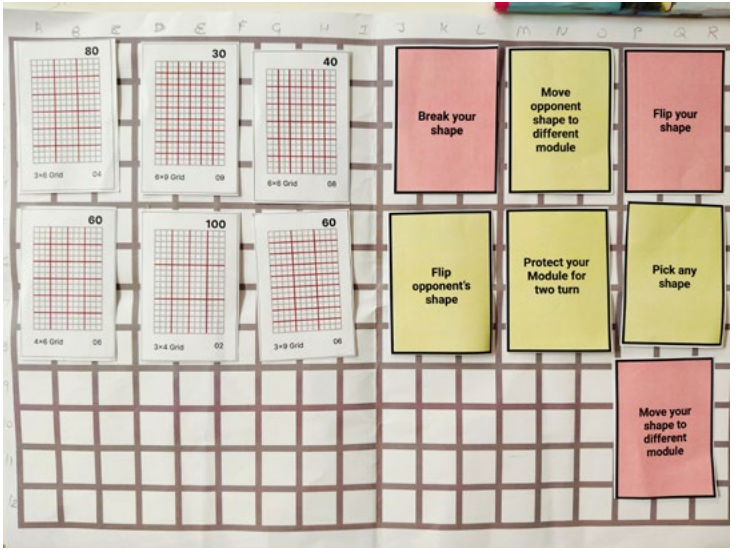
Additionally, I introduced a minimum number of modules to be completed for each grid card. Each card was assigned a certain score, with grid arrangements featuring larger modules offering higher scores. This incentivized players to tackle grids with larger modules, which required more time to complete but offered greater rewards. Conversely, grids with smaller module sizes had fewer modules to fill and lower scoring potential.

To ensure a balanced gameplay experience, I included more cards with smaller module sizes compared to those with larger module sizes. This increased the probability of players encountering quicker or more balanced gameplay sessions.

In response to feedback, I decided to reintroduce special or power cards. While I was cautious not to overdo their inclusion, I recognized their potential to add excitement and pace to the game, especially when players were exploring multiple grid cards in a single session. These cards would be carefully balanced to enhance gameplay without overwhelming the core mechanics of “Tactical Tiles.”

Snapshot of rough Prototype





Final Output: https://drive.google.com/drive/folders/1UEeSPKVcxmNJOw_T6nrx2vypXX_0e-du?usp=sharing

Learnings:

1. Embracing the iterative process has been key for me. Initially, I struggled with where to begin and felt restricted in my creativity. However, as I attempted different approaches, made mistakes, and iterated on my ideas, I learned a great deal.

2. I've come to appreciate the value of feedback, even when it challenges my assumptions. Participating in playtesting sessions has been both daunting and enlightening. While some feedback proved my initial ideas wrong, it also provided valuable insights for improvement.

3. Exploring new ideas has been an exciting part of this journey. Through playtesting and exposure to various games and tactics, I've expanded my knowledge of game design. I've learned to be open to unconventional mechanics and to constantly seek innovation.

4. Persistence and adaptability have been my guiding principles. Despite facing obstacles and setbacks, I've remained committed to my vision while also being flexible enough to adjust based on feedback. This balance has been crucial for making progress.

Above all, I've learned to enjoy the journey. Despite the challenges, uncertainties, and occasional frustrations, each step forward brings me closer to creating a unique and engaging gaming experience. The process itself has been incredibly rewarding.

Sources:

https://www.delldesignsystem.com/foundations/grid/

https://www.canva.com/learn/grid-design/

https://www.goodreads.com/author/quotes/201322.Josef_M_ller_Brockmann

https://tabletopgamesblog.com/2022/04/19/the-scientific-benefits-of-tabletop-gaming-topic-discussion/

https://www.sisq.qa/news/2020-03-17/supporting-your-child-s-learning-the-benefits-of-tabletop-games#:~:text=Games%20develop%20motor%20skills%3A,to%20promote%20a%20responsible%20attitude.

https://www.instagram.com/p/CDh9OIlhTsN/

https://visme.co/blog/layout-design/

https://www.designmatch.io/type-grids-complete-guide-designers/

https://www.invisionapp.com/defined/principles-of-design

https://stephenkelman.co.uk/digital-presentation-grid-system-for-indesign - https://www.valamis.com/hub/blooms-taxonomy

https://designbyatlas.com/

https://www.behance.net/gallery/9360195/Make-Enemies-Gain-Fanshttps://www.instagram.com/bombay-boardgameclub/

https://homegrown.co.in/homegrown-explore/enjoy-unique-homegrown-board-games-at-this-cafe-in-mumbai

https://piktochart.com/blog/event-poster-designs/

https://www.concepcionstudios.com/design