

EDIBLE TABLETOP GAMES: USING **CONSTRAINTS** TO INNOVATE

by Jenn Sandercock



I DESIGN GAMES

DIGITAL
TABLETOP
PHYSICAL
COMBINATIONS

L.A. NOIRE



I LIKE
GAMEPLAY MECHANICS



I LIKE
EXPERIMENTING



I LIKE
PUSHING BOUNDARIES



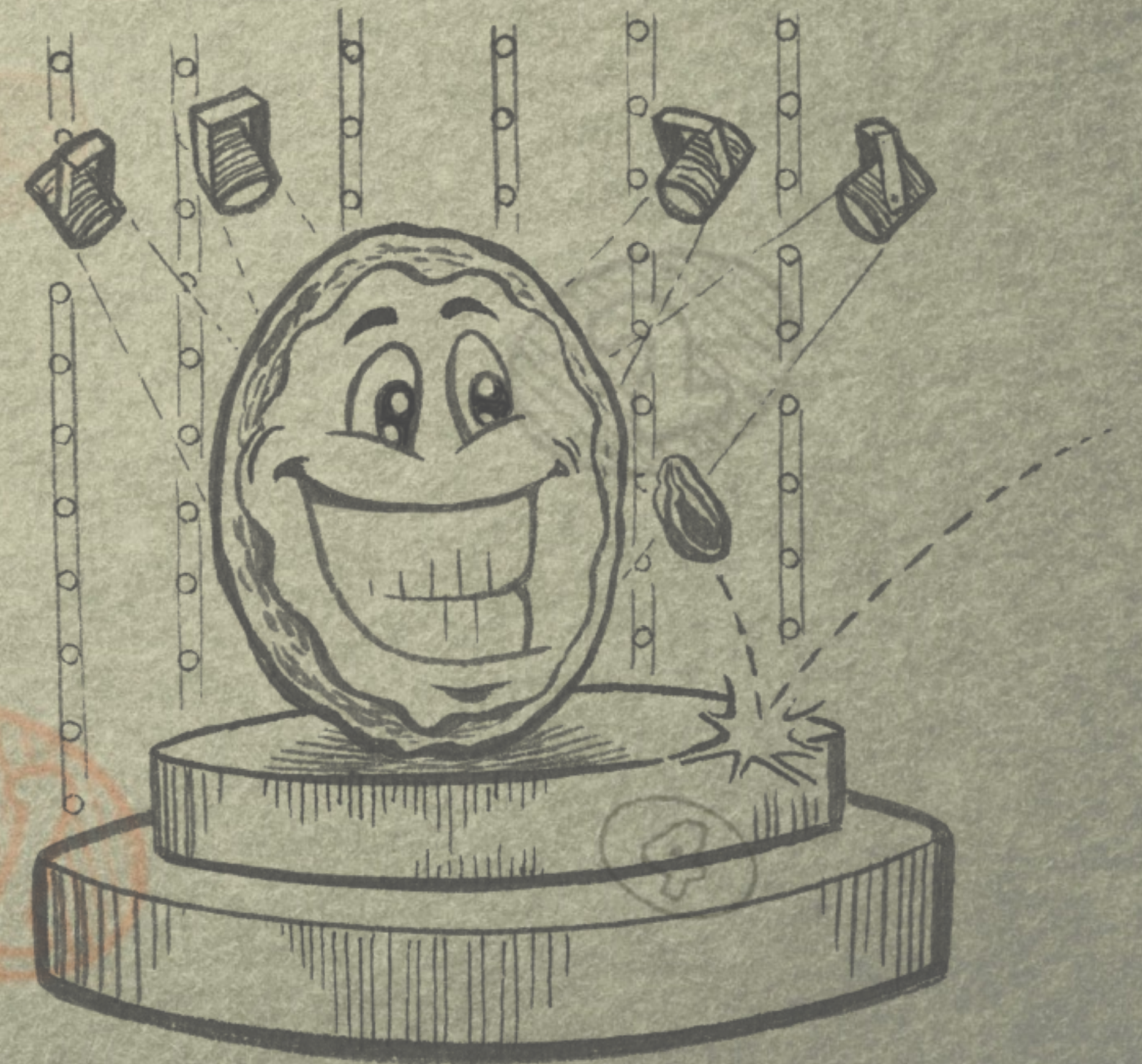
I LIKE
CONSTRAINTS!



CONSTRAINTS HELP ME **INNOVATE** AS I TRY
TO WORK **WITH** THEM, NOT AGAINST THEM



I CONSCIOUSLY IDENTIFY CONSTRAINTS
TO SEE BOUNDARIES
THEREFORE
I KNOW
WHERE I CAN PUSH
AND
HOW FAR



YOU SHOULD **ACKNOWLEDGE**
CONSTRAINTS TOO



CURRENT STATE OF TABLETOP GAMES





OFTEN **ASSUME** THE CONSTRAINT IS:
YOU MUST USE...

- CARDS,
- BOARDS,
- DICE,
- AND/OR
- MEEPLES





IS THIS **REALLY** A
CONSTRAINT?



YOU SHOULD **EXPERIMENT** WITH
DIFFERENT CONSTRAINTS



BUT **WAIT!**
IS THERE A **MARKET** FOR GAMES
WITH WEIRD CONSTRAINTS?





GLOOM

SEE-THROUGH PLASTIC



BEASTS OF BALANCE
IPAD, SCALE, AND RFID CHIPS



LARKLAMP

LIGHT PATTERNS ARE YOUR BOARD



POTION EXPLOSION

MARBLE DISPENSER FOR RANDOMNESS



WHEN IN ROME

SMART SPEAKER AS GAME HOST AND QUIZ MASTER

SO MANY **OPTIONS** FOR
CONSTRAINTS!



I LIKE BAKING



I LIKE
GAMES



BAKING + GAMES

=

EDIBLE GAMES!



MY MAIN CONSTRAINT:
EATING MUST BE A CORE
GAMEPLAY MECHANIC





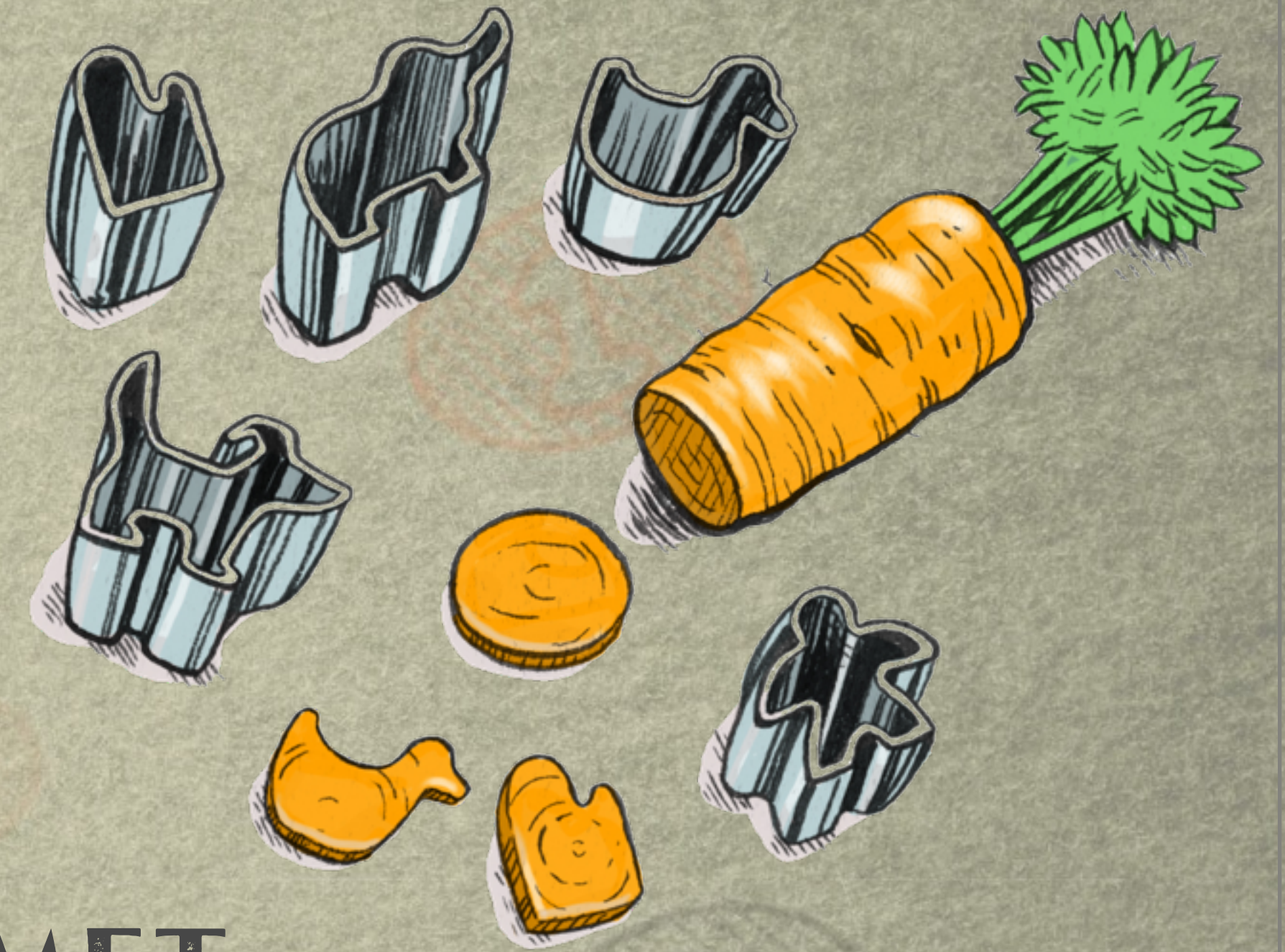
EDIBLE GAMES COOKBOOK

PLAY WITH YOUR FOOD





WHAT IS A CONSTRAINT?

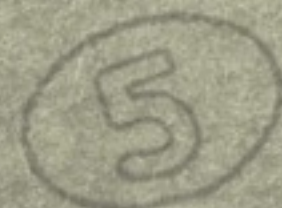
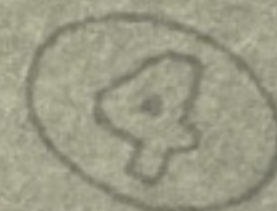


- SOME CONDITION THAT **MUST** BE MET
- (USUALLY) SET **BEFORE** DEVELOPMENT BEGINS
- COULD BE **CHALLENGING**, BUT COULD BE **SIMPLE**
- SOMETIMES **YOU CHOOSE** CONSTRAINTS
- SOMETIMES CONSTRAINTS ARE **FORCED ON YOU**

CONSTRAINTS CAN HELP YOU **INNOVATE**
AND CREATE NEW, UNIQUE GAMES



HOW TO USE CONSTRAINTS IN DESIGN



HOW TO USE CONSTRAINTS IN DESIGN

1. **FIND** A COMBINATION OF CORE CONSTRAINTS



HOW TO USE CONSTRAINTS IN DESIGN

1. **FIND**

2. **APPLY** YOUR CONSTRAINTS TO
MAKE A NEW GAME

HOW TO USE CONSTRAINTS IN DESIGN

1. **FIND**

2. **APPLY**

3. **ADD, ADJUST OR REMOVE**

**CONSTRAINTS TO CREATE ANOTHER
GAME IN A SERIES OR FINISH YOUR
DESIGN**

HOW TO USE CONSTRAINTS IN DESIGN

1. **FIND**
2. **APPLY**
3. **ADD, ADJUST OR REMOVE**

BONUS: PRACTICE & EXPERIMENT

HOW TO USE CONSTRAINTS IN DESIGN

1. **FIND**

2. **APPLY**

3. **ADD, ADJUST OR REMOVE**

BONUS: PRACTICE & EXPERIMENT

TYPES OF CONSTRAINTS



TYPES OF CONSTRAINTS



FINANCIAL

TYPES OF CONSTRAINTS



FINANCIAL AESTHETICS



TYPES OF CONSTRAINTS



**FINANCIAL
AESTHETICS
THEMES & STORY**



TYPES OF CONSTRAINTS



FINANCIAL

AESTHETICS

THEMES & STORY

PHYSIOLOGICAL & AUDIENCE

TYPES OF CONSTRAINTS



FINANCIAL

AESTHETICS

THEMES & STORY

PHYSIOLOGICAL & AUDIENCE

GAMEPLAY MECHANICS & GOALS

TYPES OF CONSTRAINTS



FINANCIAL

AESTHETICS

THEMES & STORY

PHYSIOLOGICAL & AUDIENCE

GAMEPLAY MECHANICS & GOALS

PHYSICAL & TECHNOLOGY

TYPES OF CONSTRAINTS



FINANCIAL

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PHYSIOLOGICAL & AUDIENCE

GAMEPLAY MECHANICS & GOALS

PHYSICAL & TECHNOLOGY

TYPES OF CONSTRAINTS



TYPES OF CONSTRAINTS



FINANCIAL

- HOW MUCH **MONEY** CAN IT COST TO MAKE? E.G.
- DO YOU NEED TO **SELL** THIS GAME?
- HOW MUCH WILL THE FINISHED PRODUCT COST? FOR **YOU**?
FOR **CONSUMERS**?
- **WHO** WILL BUY THIS?
- WHAT WILL BE THE **SCOPE AND DURATION** OF THE
DEVELOPMENT?

TYPES OF CONSTRAINTS



FINANCIAL QUESTIONS:

- HOW MUCH **MONEY** CAN IT COST TO MAKE? E.G.
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DEVELOPMENT?

TYPES OF CONSTRAINTS



FINANCIAL EXAMPLE



**EDIBLE GAMES
COOKBOOK**
NOT TOO MANY
SPECIAL INGREDIENTS
OR TOOLS

TYPES OF CONSTRAINTS



AESTHETICS QUESTIONS:

- WHICH ART **FORM(S)** WILL YOU USE?
- WILL YOU NEED TO **HIRE** ARTISTS?
- WHAT IS THE **RANGE** OF YOUR ARTISTS? E.G.
- WHAT IS THE COLOUR **PALETTE**?



PÂTISSERIE CODE

USES FRENCH FLAG COLOURS



TYPES OF CONSTRAINTS



THEMES & STORY QUESTIONS:

- **WHERE** IS THE GAME SET?
- IS THERE A **BACKSTORY**?
- WHO ARE THE **CHARACTERS** THAT PLAYERS PLAY?
- HOW DO YOU WANT PLAYERS TO **FEEL**? E.G.
- WHAT **ATMOSPHERE** DO YOU WANT TO GET ACROSS?
- DO YOU HAVE CORE COMPANY OR PERSONAL **VALUES**?

TYPES OF CONSTRAINTS



THEMES & STORY EXAMPLE



**ORDER OF THE OVEN
MITT**

**RELATES TO THEME
“RITUALS”**

TYPES OF CONSTRAINTS



PHYSIOLOGICAL & AUDIENCE

- WHAT CAPABILITIES AND ABILITIES DO YOU **REQUIRE** OF PLAYERS?
- CHECK YOUR **ASSUMPTIONS!**

TYPES OF CONSTRAINTS



PHYSIOLOGICAL & AUDIENCE QUESTIONS:

- WHAT IS THE INTENDED PLAYER **AGE** RANGE?
- HOW **MANY** PEOPLE CAN PLAY?
- HOW **HARD** IS THE GAME?
- DO PLAYERS HAVE EXPERIENCE WITH **SIMILAR** GAMES?
- EDIBLE GAMES: CAN **VEGANS** PLAY? CAN **GLUTEN-INTOLERANT** PEOPLE PLAY?

TYPES OF CONSTRAINTS



PHYSIOLOGICAL & AUDIENCE EXAMPLE



VEGGIE LAND

**SPECIFICALLY MADE
FOR CHILDREN**

TYPES OF CONSTRAINTS



GAMEPLAY MECHANICS & GOALS QUESTIONS:

- WHAT ARE PLAYERS **DOING** IN THE GAME?
- WHAT ARE THE PLAYERS' **GOALS**?
- IS THE GAME **CO-OPERATIVE** OR **COMPETITIVE**?
- CAN THE GAME BE **REPLAYED**?
- HOW **LONG** WILL THE GAME LAST?
- DO THE RULES HAVE TO BE **EXPLAINED** IN A RULE BOOK? E.G.

TYPES OF CONSTRAINTS



GAMEPLAY MECHANICS & GOALS EXAMPLE



HIGH TEA ASSASSIN

**CONTAINS HIDDEN
INFORMATION NOT ALL
PLAYERS KNOW**

TYPES OF CONSTRAINTS



PHYSICAL & TECHNOLOGY QUESTIONS:

- WHAT **PLATFORM** ARE YOU DEVELOPING FOR?
- WHAT IS THE **PHYSICAL SPACE** WHERE PEOPLE PLAY THE GAME?
- DOES YOUR GAME HAVE TO BE **MASS PRODUCED**?
- WHAT **TECHNOLOGY** DO YOU WANT TO USE?
- WHAT NEEDS TO **FIT** INSIDE THE BOX?
- DO PEOPLE NEED TO HAVE ITEMS FROM THEIR **HOMES**? E.G.
- WHAT ARE THE PHYSICAL **PROPERTIES** OF THE GAME COMPONENTS?

TYPES OF CONSTRAINTS



PHYSICAL & TECHNOLOGY EXAMPLE



COOKIE CRUNCHER

**MADE OF FOOD THAT
TASTES GOOD**

TYPES OF CONSTRAINTS



FINANCIAL

AESTHETICS

THEMES & STORY

PHYSIOLOGICAL & AUDIENCE

GAMEPLAY MECHANICS & GOALS

PHYSICAL & TECHNOLOGY

ANOTHER WAY TO LOOK AT CONSTRAINTS



DEVELOPMENTAL CONSTRAINTS
VS
PLAYER CONSTRAINTS

PRO TIP:
TRY TO **CHOOSE** A
COMBINATION OF CONSTRAINTS
THAT HASN'T BEEN DONE
BEFORE.

MAKES IT EASIER TO
INNOVATE.



WHAT CONSTRAINTS DO
YOU USE, JENN?



MY CORE CONSTRAINTS

FOSTER:



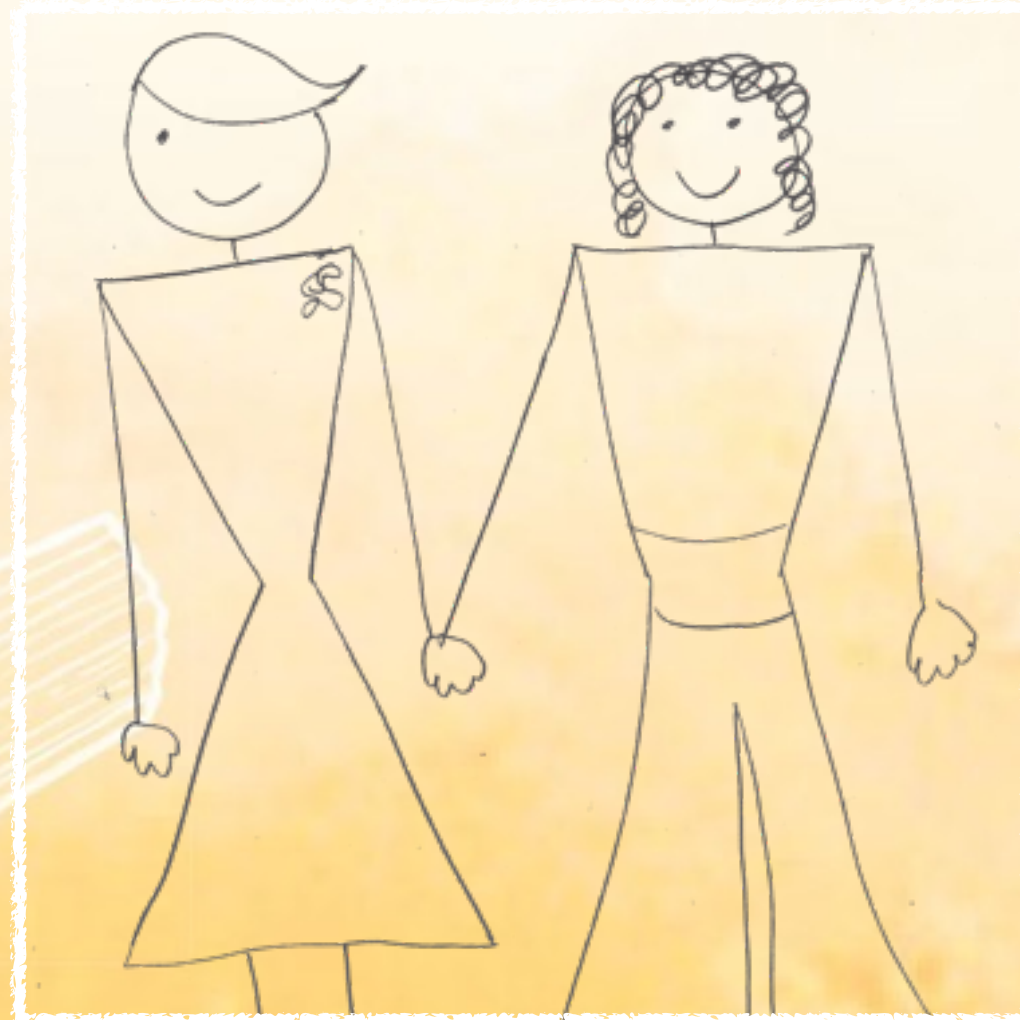
FRIENDSHIP



CURIOSITY










CHALLENGE



ALSO KNOWN AS MY CORE VALUES, SEE MY 2017 GDC TALK:

“FRIENDSHIP, CURIOSITY & CHALLENGE: FOCUSING YOUR CAREER AS AN INDIE DEV”

EDIBLE GAMES CONSTRAINTS

-  **MUST EAT TO PLAY**
-  **MADE OF FOOD**
-  **DOESN'T GO BAD IN TIME IT TAKES TO PLAY GAME**
-  **ABLE TO BE MADE AT HOME**
-  **EXPLAINABLE IN A COOKBOOK**
-  **NOT TOO MANY SPECIAL INGREDIENTS & TOOLS**
-  **DON'T SHARE SALIVA**

HOW TO USE CONSTRAINTS IN DESIGN

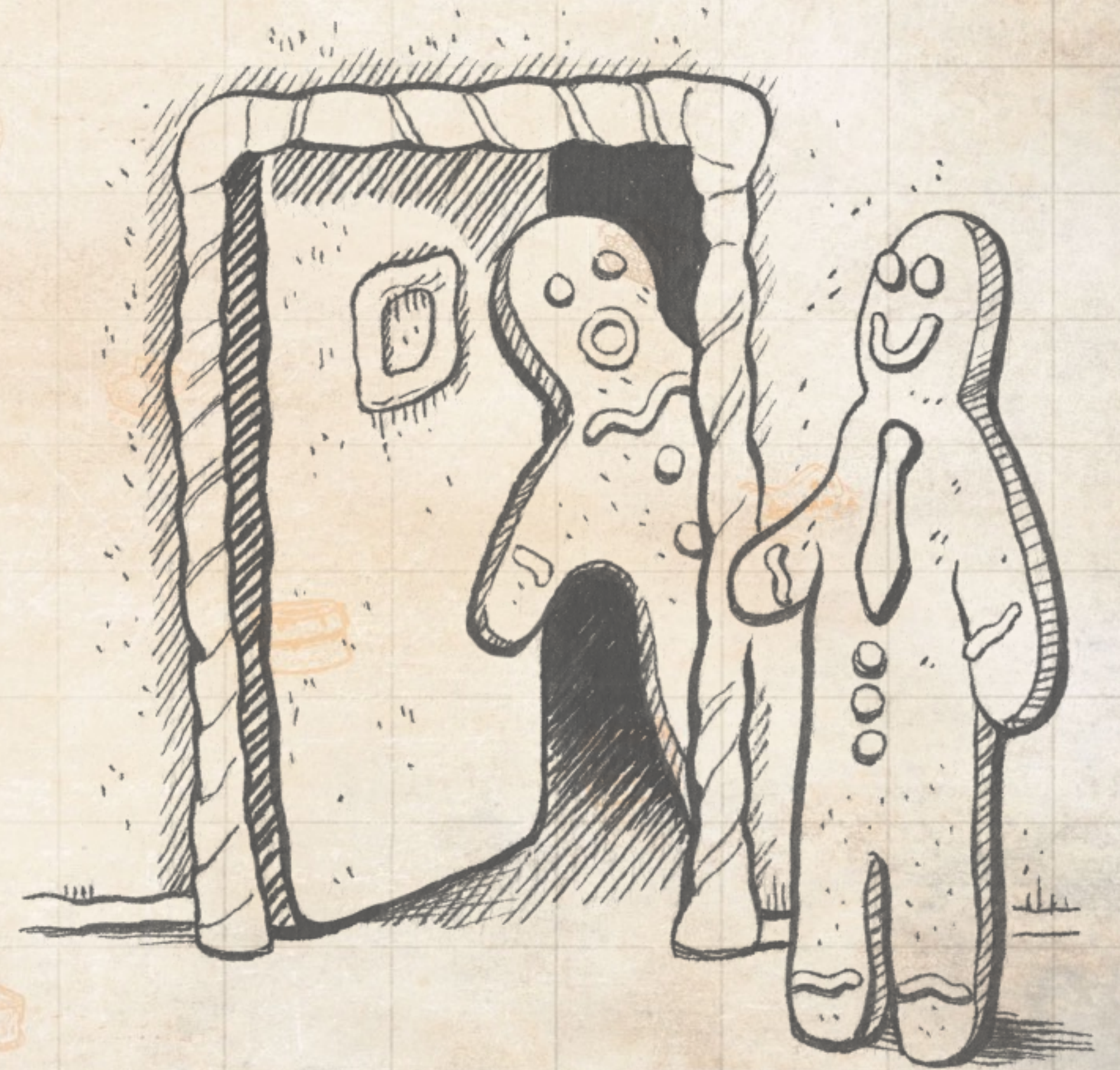
1. FIND

2. APPLY

3. ADD, ADJUST OR REMOVE

BONUS: PRACTICE & EXPERIMENT

BRAINSTORM! **THINK OF CONSTRAINTS** **AS FEATURES**





PRO TIP:

**DON'T USE EXISTING METHODS TO
DEAL WITH CONSTRAINTS, OTHERWISE
YOU'LL END UP WITH COPYCAT GAMES.**



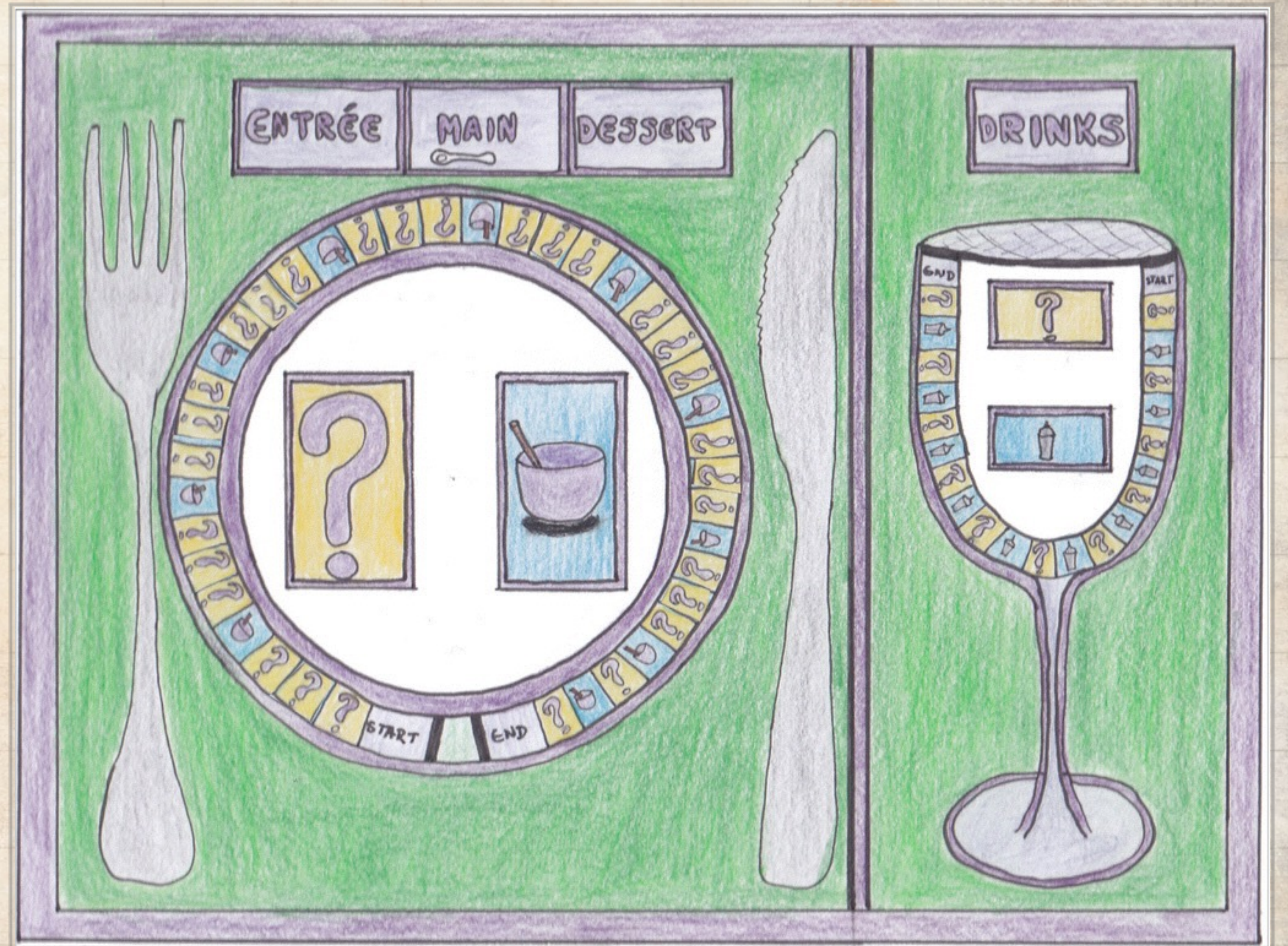
CASE STUDY: ROLL FOR FLAVOUR



IDEA A WEEK PROJECT

2009-2010

FIRST EDIBLE GAME IDEA: DINNER - THE BOARD GAME





THE **COOKIE** BAKING GAME

CREATE UNIQUE COOKIES BY COMPETING FOR INGREDIENTS IN MINI GAMES



PROBLEMS:

- LEFTOVERS
- NO NEED TO COMPETE
- MINI GAMES WEREN'T COHERENT
- COOKING TIME BOTTLENECK
- DIDN'T HAVE TO EAT!

CHECK IN: WHAT ARE MY CONSTRAINTS?



FRIENDSHIP



CURIOSITY



CHALLENGE



MUST EAT TO PLAY



MADE OF FOOD



DOESN'T GO OFF IN TIME IT TAKES TO
PLAY THE GAME



ABLE TO BE MADE AT HOME



EXPLAINABLE IN A COOKBOOK



NOT TOO MANY SPECIAL INGREDIENTS
& TOOLS



DON'T SHARE SALIVA



MAKE CUSTOM FOOD
DURING GAME



NOT TONS OF
LEFTOVERS



FOOD TASTES GOOD

Recipe:

COOKIES

Flavour
Choice
Rounds:

2



CUPCAKES

3



KEY **STICKING** POINTS

- HOW DO PEOPLE **GET** THEIR FLAVOURS?
- HOW CAN I MAKE THE ROUNDS FEEL **COHERENT**?
- HOW DO I **ENCOURAGE** CHOOSING FLAVOUR COMBINATIONS OTHER THAN CHOCOLATE?





PLAYED OTHER FOOD-THEMED GAMES





EXPERIMENTS WITH SPOONS AND SHARPIES

WILL WRITING SMUDGE?





FINAL DECISION

ROLL TO GET SPOONS



ROLL FOR FLAVOUR

COMPETE FOR INGREDIENTS WHILE BAKING

HOW TO USE CONSTRAINTS IN DESIGN

1. FIND

2. APPLY

3. ADD, ADJUST OR REMOVE

BONUS: PRACTICE & EXPERIMENT

OPTION ONE:

ADD A NEW CONSTRAINT





GINGERBREAD FRIENDS

FIND OUT MORE ABOUT YOUR FRIENDS OVER SOME GINGERBREAD



EXAMPLE QUESTIONS

NOT **KID** FRIENDLY



ADD A NEW CONSTRAINT:



SUITABLE FOR KIDS



OPTION TWO:

ADJUST A CONSTRAINT





TRAIN JAM

MAKE A GAME ON A TRAIN FROM CHICAGO TO SAN FRANCISCO BEFORE GDC

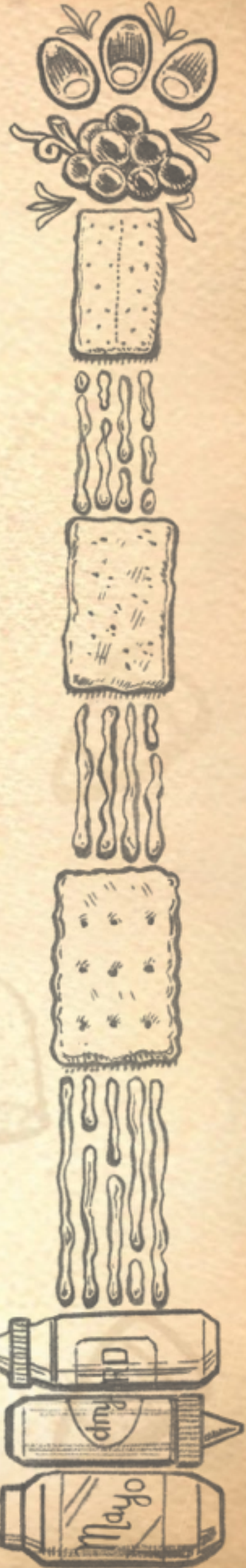
ADJUST A CONSTRAINT



ABLE TO BE MADE AT HOME



ABLE TO BE MADE ON A TRAIN WITH THE
INGREDIENTS I HAVE NOW



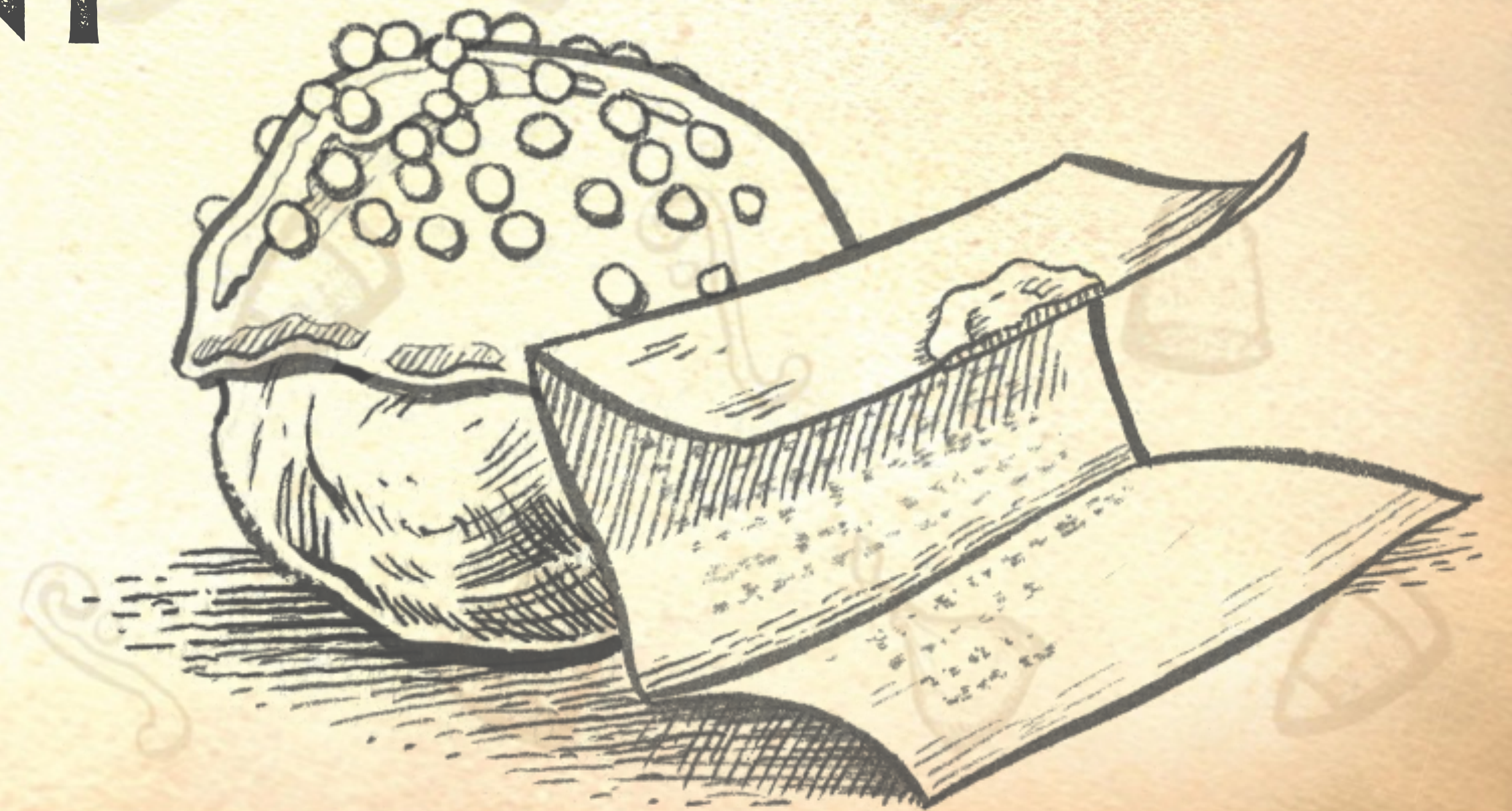


TASTE BUD IS BLIND

MIX AND MATCH FLAVORS TO MAKE THE TASTIEST COMBINATION

OPTION THREE:

REMOVE A CONSTRAINT



DO YOU REALLY **NEED** THIS
CONSTRAINT?





PÂTISSERIE CODE

SETTING: WORLD WAR II FRANCE. FOOD: CREAM PUFFS.

CONSTRAINTS:



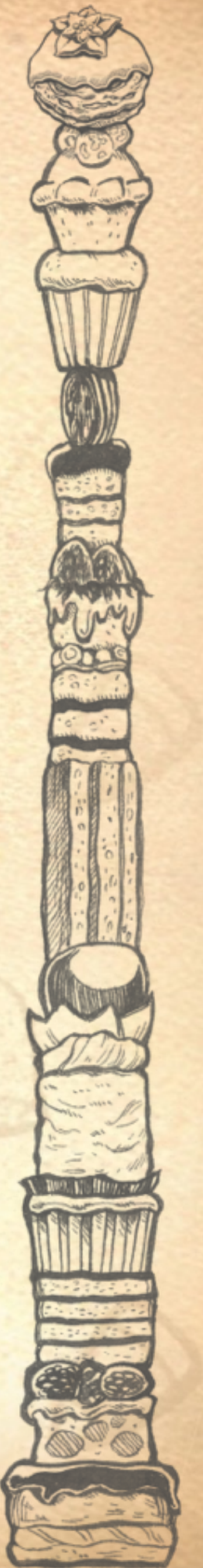
FRIENDSHIP



SERIOUS SOCIAL DEDUCTION GAME



FOR 6 PLAYERS



CONFLICTING CONSTRAINTS:



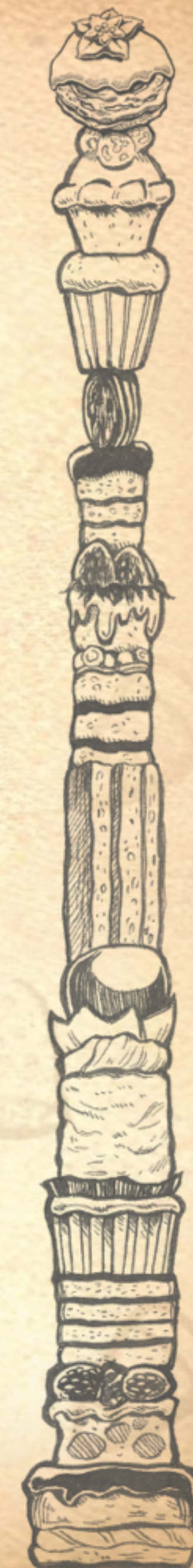
FRIENDSHIP



SERIOUS SOCIAL DEDUCTION GAME



FOR 6 PLAYERS



WHAT ABOUT HIGH TEA ASSASSIN?

IT HAS SOCIAL DEDUCTION!





PÂTISSERIE CODE

AN ESCAPE THE ROOM STYLE GAME WITH DESSERT INCLUDED

RESULTS:

CREATE A SERIES OF GAMES









HOW TO USE CONSTRAINTS IN DESIGN

1. **FIND**
2. **APPLY**
3. **ADD, ADJUST OR REMOVE**

BONUS: PRACTICE & EXPERIMENT



GIVE YOURSELF A **TIME**
LIMIT AS A CONSTRAINT,
EG. A GAME JAM



EXPERIMENT: PHYSICAL CONSTRAINT IDEAS



- PENS, PENCILS & ART
- STRING
- RUBBER BOUNCY BALLS
- PLUSH TOYS
- PLASTIC TOYS, OTHER TOYS
- CUTE LITTLE SQUISHY THINGYS
- BOOKS
- NOTEBOOKS AND PAPER
- POP UP BOOKS
- THE DECK OF LENSES (ART OF GAME DESIGN)
- OTHER GAMES PEOPLE OWN ALREADY
- MICROWAVE
- HOUSE TOOLS E.G. HAMMER, NAILS
- SEE THROUGH GLASS
- CLOTHING & LINENS
- COGS
- LASER CUTTING
- MOBILE PHONES, CONTROLLERS
- SMART SPEAKERS
- MAKEY MAKEY
- RASPBERRY PI
- EDIBLE SENSORS
- SOMETHING THAT MELTS
- PHYSICAL SPACES AND ESCAPE ROOMS

PRACTICE: **MASH UP** EXERCISES

CHOOSE **WEIRD** CONSTRAINTS
AND SEE WHAT HAPPENS



PRACTICE: **MASH UP** EXERCISES

1.



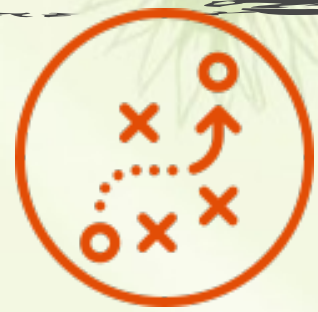
A DECK BUILDING GAME



WITHOUT CARDS

PRACTICE: **MASH UP** EXERCISES

2.



A ROLL & MOVE GAME



WITHOUT DICE OR A SPINNER

PRACTICE: MASH UP EXERCISES

3.



A SINGLE PLAYER



SOCIAL DEDUCTION GAME

PRACTICE: MASH UP EXERCISES

4.





A EURO-STYLE GAME



WITH A LOT OF RANDOMNESS

PRACTICE: **MASH UP** EXERCISES

5.  A GAME WITH BEAUTIFUL PIECES
-  THAT YOU HAVE TO SMASH AND DESTROY

PRACTICE: **MASH UP** EXERCISES

6.



A GAME COSTING \$1000 PER ROUND




FOR RICH PEOPLE



THAT FORCES CHARITY DONATIONS

PRACTICE: **MASH UP** EXERCISES

7.  A GAME BASED ON A FAMOUS ARTIST'S WORKS
-  WHERE YOU HAVE TO VISIT THE ACTUAL MUSEUMS WHERE THE WORKS ARE HELD

PRACTICE: **MASH UP** EXERCISES

8.



A GAME THAT DECOMPOSES OVER
TIME



THAT TEACHES CHILDREN ABOUT
LIVING IN THE MOMENT

PRACTICE: MASH UP EXERCISES

9.



A GAME THAT TAKES 10
YEARS TO MAKE



THAT ONLY YOU CAN PLAY

PRACTICE: **MASH UP** EXERCISES



REAL WORLD PERMADEATH

PRACTICE: **MASH UP** EXERCISES

10.



A GAME THAT MY BENEFICIARIES PLAY
AFTER I'VE DIED



TO PROVE HOW MUCH THEY KNOW ME



TO WIN ITEMS I'VE LEFT IN MY WILL

PRACTICE: **MASH UP** EXERCISES

CREATE **YOUR OWN**
MASH UPS!



IN CONCLUSION...



HOW TO USE CONSTRAINTS IN DESIGN

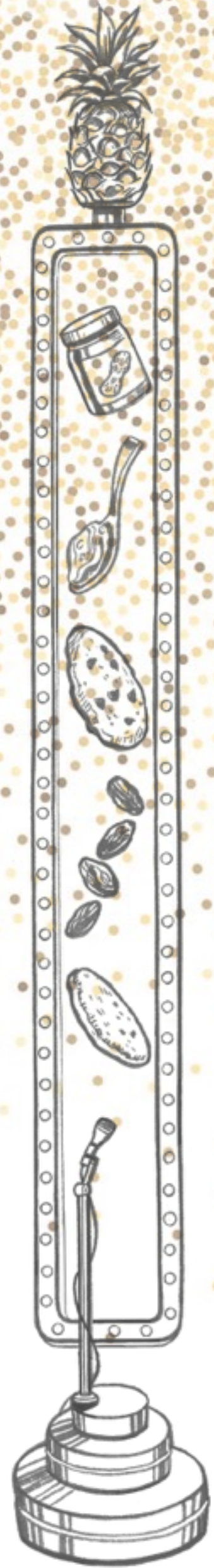
1. **FIND**
2. **APPLY**
3. **ADD, ADJUST OR REMOVE**

BONUS: PRACTICE & EXPERIMENT

REMEMBER:
CONSIDER CONSTRAINTS AS
FEATURES OR SELLING
POINTS,
NOT LIMITATIONS







THANKS! STAY IN TOUCH

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LAST CHANCE! PRE-ORDER THE EDIBLE GAMES COOKBOOK SOON