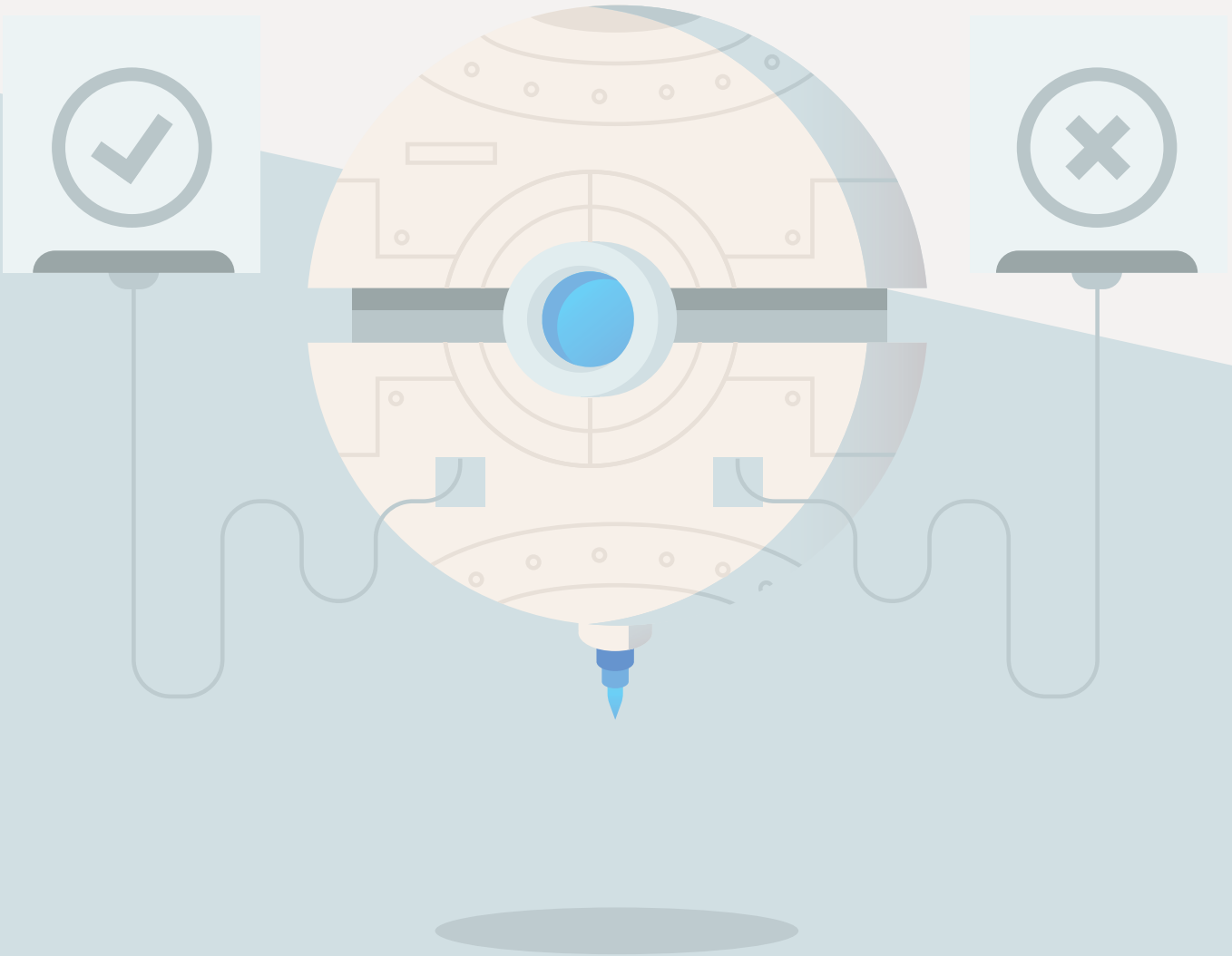
GAME DESIGN

Module 5: Interaction

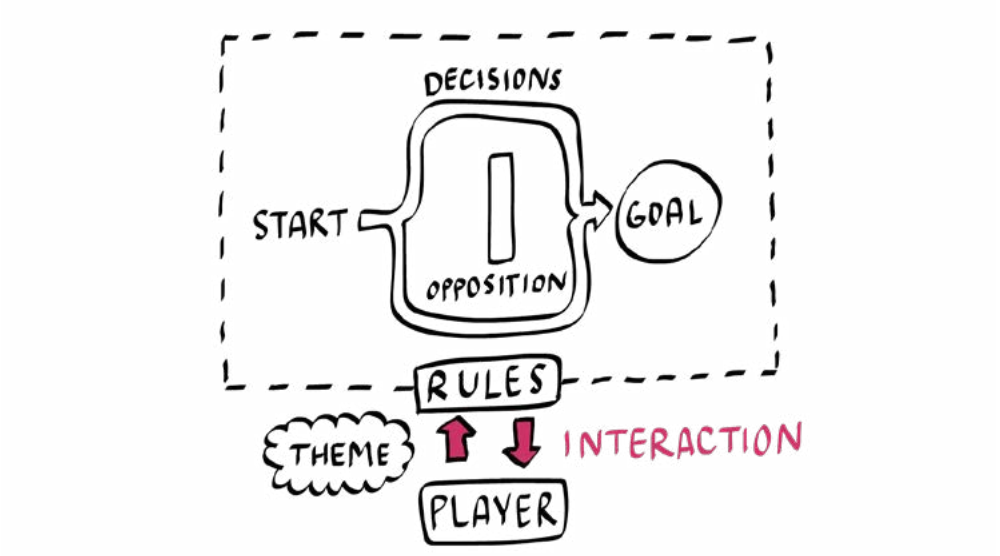


A URF ACADEMY COURSE | RIOT GAMES
VERSION 1.0

Big Ideas

Purpose

This module **focuses on the Interaction** portion of the Game Design Framework. Interaction is the gameplay between players, rules, and each other.



Student Objectives

- Mechanics are one of the tools that designers use to create meaningful decisions (depth) and rich gameplay.
- Deep gameplay sustains player interest over long time periods and allows players to gain mastery.

Overview

Table of Contents

Materials

Teacher

- Computer / Projector
  To present external links

Students

- Paper / Pen
- Us vs It Game Materials from **Module 3**
  - 1 x Final Battle Game Board
  - 1 x Action Sheet
  - 4 x Tank Piece
  - 1 x Robot Piece
- Goals game materials from **Module 2**
  (optional)

TOTAL TIME: 60 MINUTES

Lesson 1

Teacher's Context: Mechanics

2 MINUTE READ

What players call rules, designers call mechanics. Mechanics are the actions, behaviors and mechanisms that a designer uses to produce gameplay.

Colloquially, mechanics govern "things that the player can and cannot do."

In Monopoly, we would consider rolling and moving, purchasing a property, passing Go, taking turns, etc. to be game mechanics.

Many professional game designers are in charge of making mechanics for their content pieces, whether these are the specifics of their weapon and character designs or the rules describing how a player is allowed to interact with the game (E.g., is there a countdown, what are players allowed to do on their turn, what is allowed to happen on a turn, etc.)

15 MINUTES

New Robot Mechanic

STUDENTS DESIGN A NEW MECHANIC: 10 MINUTES

1. **Students design a new action for their robot.**

   Explain to the students that their task is to design a new action for their robot (new mechanic) using the theme from the last lesson.

   Explain that this new action **cannot be interpreted**. robots don't know where walls or tanks are and cannot think for themselves. They need to be explicitly told what to do (E.g., turn left). For example, a robot cannot "jump over the nearest tank" or "find the tank with the lowest health."

   An example mechanic could be: Move forward 2 spaces, then deal 1 damage to each surrounding space.

2. **Students give their custom action a name.**

   Students must give their custom action a name (spend no more than 2 minutes naming). Encourage the students to think of the most innovative action they can come up with.

MECHANICS LECTURE: 5 MINUTES

1. **Deliver short mechanics lecture.**

   Give a brief lecture about how mechanics are used in practice and some examples of mechanics from games you're familiar with. If there is time left over, have students provide examples of mechanics from games or sports they have played.

   THINGS TO MENTION

   - We have just designed a mechanic for a content piece.
   - Game designers are regularly tasked with designing mechanics for content pieces. For example, a game designer might design a weapon's mechanics or a boss' abilities (not unlike what we have just done).
   - In Us vs It, the designer would be able to alter the mechanics of the game board size, whether there are obstacles, how turns work, the tanks and their movesets, how the robot's turn functions, etc.)
   - Students will be creating mechanics for their own games in the final module (both the game's mechanics and the mechanics of the individual content pieces).
   - We will be learning about what makes a good mechanic in the rest of this lesson and the next lesson.

25 MINUTES

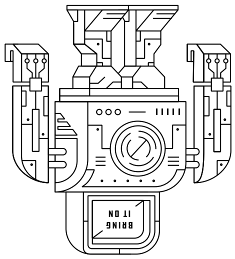
Robots Fight

ROBOTS FIGHT LESSON SUMMARY: 5 MINUTES

1. **Reveal to the students that they will be joining another group in this lesson.** Students are not to change their action orders.

ROBOTS FIGHT: 20 MINUTES

2. **Setup up the two teams of tanks and robots on the game board as shown on the following page.**



ROBOT HIT POINTS

FULL HEALTH										SELF-DESTRUCT
10	9	8	7	6	5	4	3	2	1	0

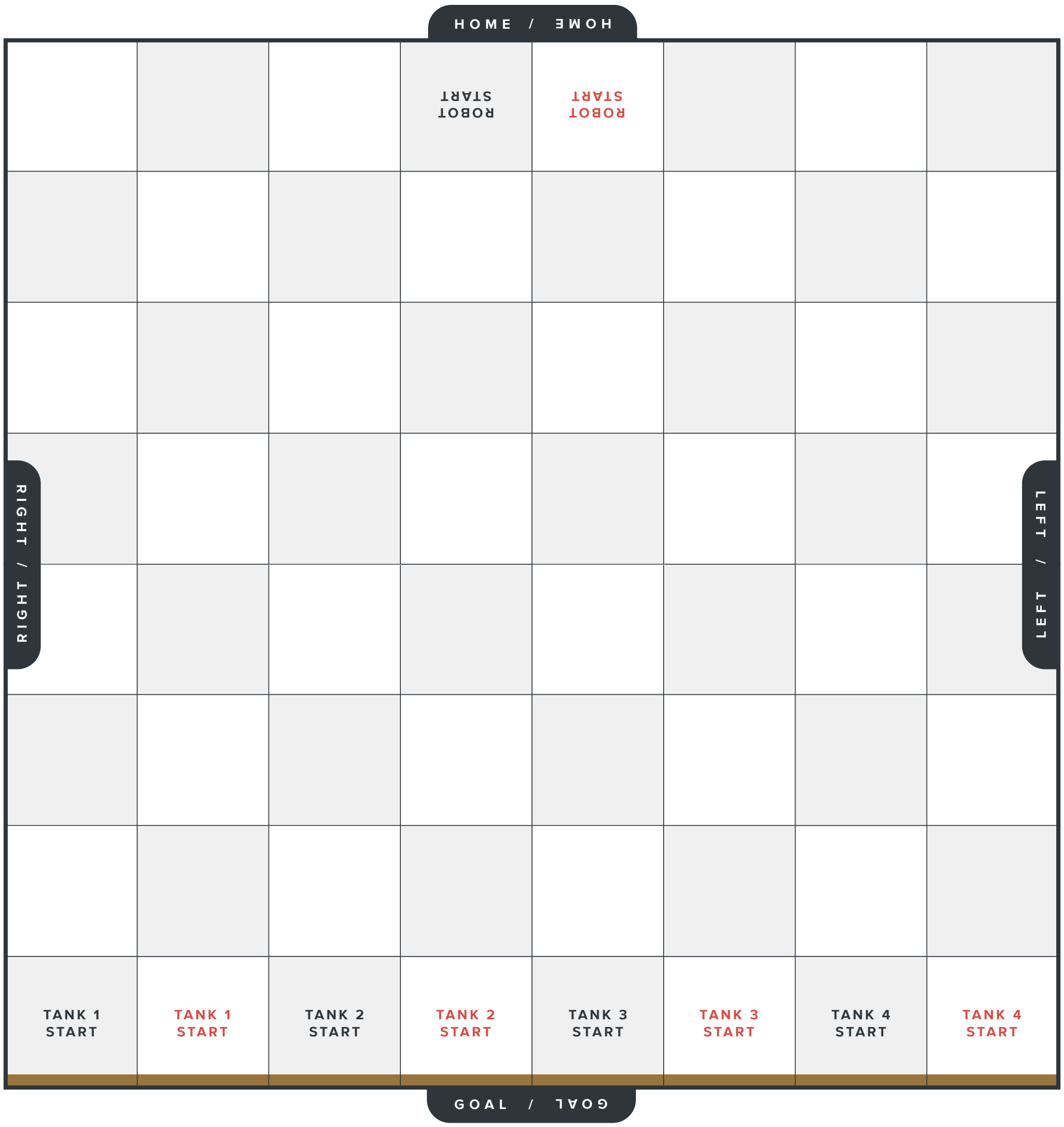
URF ACADEMY

Robot Instructions

Each turn the robot attempts to perform the actions on its list in order from 1 to 10.

If an action cannot be performed then skip it and move on to the next action.

When the robot finishes the 10th action then its turn is over and the tanks start their turn.



URF ACADEMY

Tank Instructions

Choose **3 ACTIONS** each turn, in any combination:

A) Shoot straight forward for 1 damage. You may shoot over other tanks.

B) Move forward 1 space. You may not move into the same space as another tank or the robot.

C) Rotate to face any direction.

TANK 1 HIT POINTS

4	3	2	1	0

TANK 2 HIT POINTS

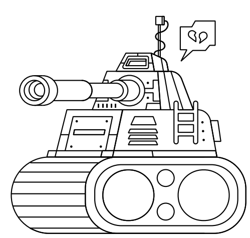
4	3	2	1	0

TANK 3 HIT POINTS

4	3	2	1	0

TANK 4 HIT POINTS

4	3	2	1	0



Game Rules

1. **The objective of the game is for one tank team to destroy the other team's robot first.**

2. **Students make a decision on two of the rules in the game on a group by group basis.**

   CHOOSE EITHER:
   - Tanks on opposing teams can destroy each other.
   - Tanks on opposing teams cannot destroy each other.

   CHOOSE EITHER:
   - Robots on opposing teams cannot damage each other.
   - Robots on opposing teams can damage each other.

3. **Rule: Robots deal damage to tanks regardless of their team.**

4. **Follow the core game loop from the previous lesson.**

   - Team 1's tanks take their turns.
   - Team 2's tanks take their turns.
   - Team 1's robot executes its action order.
   - Team 2's robot executes its action order.

5. **Repeat until one team reigns victorious.**

15 MINUTES

Mechanics Discussion

Enduring Understanding

- Mechanics are one of the tools that designers use to create meaningful decisions (depth) and rich gameplay, which sustains long term engagement and growth in player mastery.

Essential Questions

What is a mechanic and why is it important?

- Mechanics are essentially the rules that allow players to take (or not take) actions and make decisions in a game.
- Mechanics are important, because without mechanics, there would be no game.
- In a game like basketball, we would consider actions like dribbling, shooting, passing to be mechanics that the game designer created.
- Can students name the main mechanics in their favorite sport/game?

What interesting results were there in choosing between each of the rulesets?

- Some rulesets produced superior gameplay.
- Have students discuss the pros and cons of each of the rules.
- When robots were able to damage each other, the game outcome may have felt out of the player's control, due to the robots killing each other.
- When tanks could destroy each other, players may have been eliminated without being able to take an action.
- The goal of the game (to destroy the other team's robot) may have been undermined by just killing the other team's tanks and then destroying the robot with no resistance.
- When tanks couldn't destroy each other, the positioning considerations may have increased the gameplay depth by forcing players to reconsider their movements (some paths and positions may have been blocked).

Which mechanics from either game required improvement?

EXAMPLES

US VS IT

- The tanks had very solved decision trees, which led to the gameplay being quite repetitive.
- The time between players taking actions was extensive.
- Some players may have found the game unsatisfying as they were not facing other players.

GOALS GAME

- It was clear which players were going to win halfway through the activity; chances of a comeback victory were low.
- It was clear which players were going to win halfway through the activity; chances of a comeback victory were low.

TOTAL TIME: 60 MINUTES

Lesson 2

Teacher's Context

10 MINUTE READ

DEPTH

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.

These meaningfully different outcomes force players to make meaningful decisions. For example, if a player chooses to position themselves to the **left** of another player instead of the **right** they're making a meaningful decision that would impact the way they play and the outcome of the game. But standing a step back from the other player is less so.

When a game is balanced, it is more likely for deep choices to emerge. When a game is not balanced, depth is lost because some choices will just be strictly superior to others and result in more deterministic outcomes in gameplay.

In the first Us vs It playthrough, it is likely that regardless of what the tank players did, the robot won anyway (probably by moving through the goal), or the tank players won without thinking about anything because the robot kept running into the wall. This is an example of an imbalanced game being unable to expose its depth to the player.

2 MINUTES

Depth vs Complexity: Why More Features Don't Make a Better Game | Extra Credits
https://www.youtube.com/embed/jVL4st0bIGU?start=0&end=163

BREADTH

The number of decisions that a player can make at a given time.

Breadth is one of the causes of analysis paralysis (paralysis from too many choices). Generally speaking, 2-5 choices is a good amount to avoid this.

COMPLEXITY

Complexity is the amount of information **a player needs to know** in order to make a decision. It can be thought of as the number of sentences it would take to explain how to play the game or take an action (I.e., how complicated it is).

Complexity is the other cause of analysis paralysis; when a game has too much complexity, players can be paralyzed while trying to make a decision.

Designers can add depth to a game by adding more and more options, but this is usually infeasible due to the high complexity cost associated with doing this.

Consider Rock, Paper, Scissors. This is a game that is not very deep. Adding two more options will increase depth, but also drastically increase complexity (the player now needs to remember which of the 5 options defeats the other 4 options [there are now 10 combinations to memorize, as opposed to 3]).

ELEGANCE

The ratio of depth to complexity. The higher the depth and the lower the complexity, the more elegant the design.

Clever designers will hide complexity until it is immediately relevant (E.g., well constructed and segmented rule books for board games or designing the game so that you only need to know a smaller subset of information to start the game).

Designers should try to aim for elegance (high depth, low complexity) as it results in the best gameplay, while still being learnable. This is especially true when designing a game's systems.

The worst case scenario for a game (or a mechanic) is to be very complex with low depth as this creates a high barrier to entry for players, while being a relatively unsatisfactory and potentially boring experience.

15 MINUTES

Depth and Complexity Discussion

Enduring Understanding

- Mechanics are one of the tools that designers use to create meaningful decisions (depth) and rich gameplay.
- Deep gameplay sustains player interest over long time periods and allows players to gain mastery.

DEPTH VS COMPLEXITY: 5 MINUTES

1. **Explain that now that we know what a mechanic is, we will be learning about what makes a good mechanic.**

2. **Show Depth vs Complexity Video**
   Students will now have had exposure to designing mechanics without these frameworks in mind. This lesson is about helping students to formalize a **framework** to design high quality mechanics (and games).

   2 MINUTES

   Depth vs Complexity: Why More Features Don't Make a Better Game | Extra Credits
   https://www.youtube.com/embed/jVL4st0blGU?start=0&end=163

Essential Questions

Supplement the video with:

- The distinctions between depth, breadth and complexity.
- The rock paper scissors example (getting bad gameplay depth returns on a significant complexity increase).
- Define elegance and why it is important to create elegant designs (lowering the barrier of entry for a player).

Does a designer always need to design for depth?

- Experiences that are targeting the “submission” or “sensation” types of fun may not require the depth of gameplay as a game that is targeting the “challenge” type of fun.

Why was Us vs It boring?

- Us vs It, while balanced was quite repetitive.
- It lacks gameplay depth, due to the inability for the game to produce **meaningfully different outcomes** and **journeys to reach those outcomes**.
- As noted in the previous lesson, the tank decisions were very easy for the most part.

35 MINUTES

Improve a Game

Students take either Us vs It or the Goals Game and are to make meaningful improvements to any of the axes that we have currently learned.

1. **Instruct students to start with a goal for the iterations:**

   Clearly stating a goal provides a guiding light for what the students are ultimately trying to achieve and a core value to fall back to in case they get stuck. Having a goal such as “improve the game” is likely to produce worse results than a goal which explicitly states **what** we’re trying to improve. These could include tactics such as:

   Rules/Goals

   US VS IT

   - The 3 abilities of the tanks in Us vs It could be changed to improve depth.
   - The abilities of the robot could be changed to improve depth.
   - The entire game flow and operations could be changed to decrease repetitiveness.
   - The game could pit the 4 players against each other with the robot as a rogue unit that attempts to kill the tanks.

   GOALS GAME

   - Adjust the goals game to include secret goals and the ruleset surrounding them.
   - What if there are two goals in play at once?
   - What if exactly one player is assigned a secret goal?
   - The entire baseline game could be changed to not use paper footballs.

     E.g., A game where you flick coins onto colored pieces of paper and score points based on the color it landed on.

   Opposition and Interaction

   - Tailor any of the existing game mechanics to promote depth in gameplay.
   - We previously discussed how some of the goals cards produced interesting decisions for other players.
   - Improvements could focus on creating cards that have the maximum depth or to adjust the baseline game (without cards) to have maximum depth.

   Thematic and Narrative

   - Retheme the Goals Game to include a thematic and a narrative.

15 MINUTES

Discussion

Enduring Understanding

- Mechanics are one of the tools that designers use to create meaningful decisions (depth) and rich gameplay.

1. **Students take turns to present and defend their design decisions.**

   TIMEBOX GROUPS TO 3 MINUTES EACH.
   Encourage students to use some of the nomenclature used in the lesson where appropriate. It will make it easier for students to communicate ideas between each other and will assist in creating the final documentation for their journals/project.

Homework

Game Design Framework Worksheet

1. Students are to fill out what they learned from the Interaction portion and important takeaways (at least 3).
   - The focus should be on how these learnings apply to games generally or to the game they will create in the final module.
   - The responses should be open ended.

“Improve a Game” Documentation

Students should detail the changes they made to improve their chosen game and justify why they were an improvement.

Students should clearly articulate the goal they were setting out to achieve, tactics they considered in attempting to solve that goal and why the tactic they chose was the best (and why the other tactics were inferior).