



*the*  
**GAME**  
**DESIGN**  
**TOOL KIT**

PRESENTED BY  
**LEARNING GAMES NETWORK & FABLEVISION**



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# INTRODUCTION

## How to Effectively Use the Game Design Tool Kit

THE VALUE OF GAME DESIGN as an effective pedagogy for teaching across the curriculum need not be tied to the use of computers or technology. Engaging your students in games and game design doesn't require you to be an expert when you implement the process we've developed here. Rather, it's your expertise in managing and designing curriculum and courses that will make the use of the Game Design Tool Kit -- GDTK 1.0 -- easy and effective.

The process of game design looks very similar to thoughtful research and and creative development activities you likely already incorporate into your teaching. It requires students to exercise conceptual, critical, strategic and creative thinking, communication, collaboration, and planning skills. Whether your aim is to work with students to create paper-based games or digital game concepts, the GDTK cards and discussion prompts are designed to support a wide variety of game concepts. Final assignments range from completed Game Design Journals to fully developed design documents, playable paper prototypes, and/or class presentations.

The GDTK provides you with cards and discussion prompts to support integration of our game design framework into your existing curriculum plans. Whether you use the cards to create lessons around individual activities or as part of a weeks- or semester-long project, discussion prompts are intended to help you coach students through each step of the research, design, and development process.

Since game design is such a collaborative effort and to support the development of important communication and collaboration skills, we encourage you to coach students in teams. Through our GDTK development activities, we've seen the best concepts emerge from teams of students where each individual can play a role by focusing on what they like and what they're good at, whether that's research, writing, graphic design or illustration, technical awareness, or project management.

# GETTING STARTED

## Creating Journals and Mapping a Timeline

IF YOU PLAN TO USE the GDTK over several weeks or as a semester-long project, we recommend students create a Game Design Journal to record their ideas. This can be done in a notebook or as part of shared online documents with you and, if they're working in teams, their design partners. Throughout the process, you can create checkpoints to review and evaluate student performance through Game Design Journal entries.

We also recommend that you map a "Design and Development Timeline" for students, which includes milestones for you to evaluate their work. An example of a 10-week project is on the opposite side of this page.

We recommend evaluating student work at the end of Weeks 2, 5, 8 and 10.

Depending on whether the topics students will research are narrowly or broadly framed, the Explore phase may be reduced or expanded appropriately; the goal is to get students to research and document what they learn during this phase because all other phases build on this initial work.

- WEEK 1** Introduce GDTK and start Game Design Journals
- WEEK 2** Explore — Students should complete a first pass of all research
- WEEK 3** Discover — Preliminary design discussions and journal entries
- WEEK 4** Discover — More detailed journal entries
- WEEK 5** Discover — All prompts completed and documented
- WEEK 6** Create — Paper prototype development begins
- WEEK 7** Create — Paper prototype development completed
- WEEK 8** Create — Paper prototype testing and results entered in journals
- WEEK 9** Share — Game journal entries converted to design document or presentation
- WEEK 10** Share — Final papers and/or class presentations due

# DESIGN DOCUMENT FRAMEWORK

## Structuring a “Game Design Concept”

THE FOLLOWING FRAMEWORK PROVIDES a recommended approach for students to structure their final “Game Design Concept” paper. It is based on a collection of documents that members of our team have created in recent years to design games and use as the basis for collaboration with our development and production partners.

While it doesn’t prescribe a fully detailed “functional requirements” document, this proposed outline requires students to consider all GDTK cards and associated design and development activities. Generally, a completed document ranges between 20-30 pages, depending on included diagrams, flow charts, user interface samples, and other schematics that enable the reader to better visualize a concept.

### WORKING TITLE

Be creative. Students should put on their marketing hats and consider cool names that will resonate with their audience, including other teachers and students. Sub-titles may be used to describe the learning that will be supported by the concept. *(One or two lines)*

## GAME STORY

This is where students really describe the world of the game and create a compelling, engaging back-story. It is a very detailed narrative of the space the player and other characters will inhabit within the game. It also provides some sense of the role the player will perform and what designers expect him or her to experience as they explore the world. While not all elements of the narrative will be produced in an eventual game, this section provides a sense of what happens in the game “world” before, during, and after the player passes through it. The development of this section involves all team members -- artists, writers, musicians, and others. *(Four to five pages from GDTK Discover and Create prompts.)*

## GAME STRUCTURE

This is a detailed narrative that describes the elements of play and important features that enable the game, including sub-sections on:

- Learning Goals, Challenges, and Levels
- Player role (avatar), Community (if any), and Non-Playable Characters/Agents
- Advancement/Achievement, including Sub-Levels, Points, Ranking
- Interface, Information, and Tools, including Navigation/Map, Chapter Index
- End Goal and/or Win State

*(Six to eight pages from GDTK Discover, Create, and Share prompts.)*

## PLAYER EXPERIENCE

**Story elements:** Unlike the section on “Game Story,” which provided a very broad sense of the world, this section requires students to focus in on a step-by-step description of what the player experiences, learns, and does at each level or chapter of the game. It provide a nuts and bolts walk-through of the game concept so that readers can immediately recognize the creative play elements, as well as the anticipated learning path players will experience. Students may want to describe story elements and game challenges separately in this section to distinguish elements that are contextual or linear and those that are interactive and controlled by the player. (Three to five pages from GDTK Discover and Create prompts.)

**Interface and Navigation:** Building on “Game Flow” and “Story Elements,” this section requires tables and/or charts that provide the reader with information about the kinds of menus, tools, and information sources the player can access as they progress through the game. If the concept is organized around levels/challenges, students may consider a more chapter-based interface. If a game concept requires the player to navigate a world,

students may want to use maps to orient and direct the player. Regardless of the approach, students should provide some sense of the menus and choices the player can make to find information as he or she advances through the game. If students are developing an online social game, they should include information about how players communicate and collaborate, both synchronously (e.g., text or voice chat, SMS) and asynchronously (e.g., e-mail, discussion boards). *(One to three pages from GDTK Discover and Create prompts.)*

## APPENDIX: LOOK AND FEEL EXAMPLES

To supplement the concept narrative and schematics, it’s sometimes helpful to include screenshots and menus from games that have inspired a concept or informed design. While students need to be detailed and precise in writing the previous sections, the appendix provides an opportunity to exercise “short hand” in helping the reader visualize the game or understand how recommended play patterns and features emerge from or are used in other games. *(Three to five pages)*

**Final Notes:** Depending on the skills and resources of student teams, they may decide to create original art, screenshots, avatar designs, etc. We encourage students to pursue any elements they feel comfortable developing and including in the final document. In short, this document will communicate the students’ vision for a

learning game that will, we hope, be new and innovative. You should feel free to encourage students to use all the tools and resources at their disposal to create an informative and compelling document.

This document framework can also be used to structure a class presentation, albeit with far less text and more images and flow charts with “headlines” and key points taken from each section.



## RESEARCH

What do you want to learn more about?

What do you want to help others understand?

E1

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

At the start of a game design assignment, whether you provide research parameters or encourage exploration of a wide range of potential topics, it's important to get students to cast a wide net. They should understand the context of a topic and then begin to focus on key aspects, components, or processes associated with it.

For example, while a good starting point in biology might be “human cell reproduction” additional exploration of cell phases, nucleus dynamics, and DNA replication (including nucleotide matching) should also be explored and understood at this stage of the process.

The more students explore at the start of their research, even in general terms, the greater the possibility set becomes for what they might eventually incorporate into designs. The open-endedness of the starting point also provides instructors with a variety of hooks to help make content relevant for students.

INSTRUCTOR NOTES





## RESEARCH

Describe your strategy to learn more about the topic.

E2

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Students may default to their textbooks, Google, and/or Wikipedia as they begin their research. These are good starting points but, in addition to looking to you for information, we recommend you encourage them to seek out and interview local experts and other resources as they continue to explore the topic.

One of the benefits of meeting with experts or professionals is that they often share enthusiasm, passion, and insights that infect students and ignite their imaginations. An interview can reveal “a-ha” moments that might spark a creative idea in young designers. Encourage students to do preliminary research and come up with interview questions based on what they find.

Their strategy and research plan might also include a visit to an historical site, museum, lab, or other professional location. For instance, students who are considering a game to explore who fired the “Shot Heard Around the World” might be well served to visit the battlefield at Lexington and Concord, if they live in New England.

INSTRUCTOR NOTES



## RESEARCH

List your sources, including interviews.

E3

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

As responsible media producers, students should document all relevant sources. Be sure to remind students of your expectations for bibliographic information during the research and development process. While footnotes are obviously a challenge in game play, you should encourage them to cite their sources in any design documents and presentations associated with game design deliverables.

INSTRUCTOR NOTES



## RESEARCH

Where does the fun emerge  
in your topic?

What is playful about  
your topic?

E4

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

This may prove one of the more challenging aspects of the EXPLORE process. As students continue their research and tackle these questions, they will tend to immediately start brainstorming play patterns, mechanics, and worlds that look like games they already play, master, and experience on a daily basis. Explain to students that these questions are not about game design. They are about focusing on topic details and looking at them from all sides.

Encourage students to focus on the research they've done, especially if they've completed interviews or visited a location, and tease out where the "fun" emerges in learning about the topic. What are some of the "a-ha" moments they've encountered? What has surprised them or challenged their assumptions?

Remind students that fun and playfulness can emerge in even the most seemingly uninspired topics. Exploration of the "four freedoms" in subsequent prompts may help.

INSTRUCTOR NOTES



## RESEARCH

Where does the  
*\*freedom to experiment\**  
emerge within and around  
your topic?

E5

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

As they explore topics, encourage students to consider the variety of ways information, processes, and facts can be changed or challenged to result in different results or products.

This prompt will not only get your students to focus on specific characteristics and behaviors of items and processes, but will begin to spark creative approaches for their designs.

The freedom to experiment can be challenging for students because they are conditioned to come up with the right answer. Their tendency will be to focus on what they want players to learn and to create a design, often a single pathway, to achieve that goal.

By exploring a variety of strategies tied to a prospective topic, students open themselves to consider a variety of paths for players to explore.

INSTRUCTOR NOTES



## RESEARCH

Where does the  
*\*freedom to fail\**  
emerge within and around  
your topic?

E6

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Whoa, freedom to fail?! In school?!

Experimentation and failure are important aspects of learning, enabling us to push limits, make mistakes, and try something again and again until we succeed and eventually master something. In games, experimentation and failure are also key to engaging play.

Students should have fun with this prompt, if only because they have an opportunity to consider the ugly hybrid organisms, poisons, disasters, explosions, and alternate realities that could emerge from misplaced variables or interrupted processes.

The goal here is not to inspire chaos or wreak havoc by changing variables but to get students to consider potential and acceptable limits of what they can explore in relation to the topic. Ultimately, this prompt will help them consider how to make failure fun in their designs.

INSTRUCTOR NOTES



## RESEARCH

What *\*freedoms of identity\**  
does your topic inspire?

E7

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

One of the great aspects of games is the freedom to fashion identity in ways other media do not afford. Encouraging students to explore the different perspectives and roles associated with learning about a topic can help them see potential play opportunities.

For example, the issues American colonists had to address in deciding to seek independence from England are complex and varied according to whether you were a land owner, merchant, or slave, among others. Being able to explore these issues in other people's shoes provides opportunities for learners to appreciate different perspectives.

Similarly, being able to understand the relationships between sub-atomic particles such as electrons and protons begs for a role-playing experience where the learner can sit in the driver's seat of each and experience how they behave in ways textbooks and animations could never enable.

INSTRUCTOR NOTES



## RESEARCH

What *\*freedoms of effort\** emerge around your topic?

E8

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Sometimes it's easier or preferred to memorize facts and figures. Sometimes it's more challenging and exciting to create or build something with newly discovered knowledge and mastered skills.

While exploring a topic, students should think about the “low-hanging” fruit they can share with players and imagine more complicated, complex, and clever ways to apply basic information or simple processes in more advanced ways.

By understanding the different freedoms of effort around a topic, they will discover opportunities to design levels and create play mechanics that engage players in a variety of ways.

INSTRUCTOR NOTES



## RESEARCH

What vocabulary, definitions and facts are critical to understanding your topic?

E9

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Encourage students to create an inventory of important terms and processes that are critical to understanding a topic. As they begin the design process, they should consider where they will give players an opportunity to discover these important elements of the topic and/or where they will have to define or describe them .

The checklist will also help you assess the breadth and depth of the student's research, enabling you to provide direction on where they should expand or refine their research before beginning design.

INSTRUCTOR NOTES





## RESEARCH

What processes and procedures are important to grasping your topic?

E10

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Similar to the vocabulary and facts checklist, a roster of processes, cycles, sub-cycles, timelines, etc... also enables students to consider the things they may ask players to do in their game designs.

Again, students' lists will also help you assess the breadth and depth of research and offer feedback before they embark on discovering their designs.

INSTRUCTOR NOTES



## LEARNING GOALS

What do you want players to learn?

What's the target age/grade?

D1

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

During this phase, students move from research to creative development, discovering the game in the topic they've been exploring.

Very clearly, students should define the learning goals of their game and what they want players to come away knowing. Designing for a target age, whether peers, younger or older players, enables students to design for a specific audience, building on assumptions around what they may already know or not know about a topic.

Examples: "Players will learn about the different phases of cell reproduction, including the process of DNA replication." "Players will gain a new appreciation for the diverse perspectives of colonists leading up to the American Revolution."

The learning goal should serve as a constant beacon during the design process, reminding students that the concept they create should support that goal.

INSTRUCTOR NOTES



## MAIN GOAL OF THE GAME

To win, the player must...

D2

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

This prompt may emerge through exploration of subsequent ones, but ultimately students should be able to articulate very clearly what players must do to complete and win the game.

This should be a succinct statement and not include too much detail about the game play. Often times, students may try to pack too much into the goal, providing too much detail about play mechanics or game world details.

Examples: “To win, the player must successfully complete a series of puzzles that represent different stages in cell reproduction, manipulating organelles, nucleotides, and enzymes to create a duplicate cell.” “To win, the player must assume a variety of roles in Colonial Williamsburg, share information, and make decisions that ultimately influence other colonists to declare independence from England.”

INSTRUCTOR NOTES



## SUB-GOALS OF THE GAME

To advance a level, the  
player must...

D3

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Here, students should provide more detail about play mechanics, explaining how players move through the game world, complete tasks, steps, or quests, earn points and achievements, etc...

You should offer feedback on the way students have broken down the topic and imagined their levels, helping to ensure that they have appropriate segmentation in the information or processes they want players to understand. Level design will help you better understand and assess students' conceptual organization and mapping of topics.

It's also helpful at this point in the design process for students to begin thinking about their target platform (i.e., console, PC/web, smartphone, tablet, board game, card, etc.). This will help to inform descriptions and details required by subsequent prompts.

INSTRUCTOR NOTES



## LEVELS/CHALLENGES

Stages of game play include...

D4

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

In addition to specific levels, students may decide to blend genres or create different play spaces in the same game, especially if the topic they've been exploring is multifaceted or complex. Levels may be clustered together in stages. Stages help young designers think about the different "freedoms of effort" they can incorporate into game play.

For example, in a math game, designers might want to challenge players to complete a puzzle, solving for a variable first. Then, having accomplished that goal, there may be opportunities as part of multi-player stages or phases of play when the player has to share their strategy as part of coaching others.

In creating different stages of play, designers create opportunities for the player to learn by doing and then to learn by reflecting on sharing what they've done.

INSTRUCTOR NOTES



## RULES

Global and level/challenge specific goals include...

D5

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

While the previous prompts require the designer to define the game's overall structure, this prompt is meant to encourage them to focus on very specific level/challenge goals. The research they've done during the previous phase should inform the component challenges, puzzles, quests, etc... that should be outlined and described here.

This is one of the most difficult steps in the design process, in part because young designers must now zero in on specific play mechanics that emerge from their research. While young designers will certainly be able to offer compelling and general descriptions for the prompts that immediately precede this one, it's important to coach them to focus their ideas, make connections to the research elements they've identified as priorities (i.e., the important information and processes listed in response to prompts E9-E10), and offer more details and game specifics to their designs.

INSTRUCTOR NOTES



## SCORING

Players earn points and receive achievements for...

D6

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

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INSTRUCTOR NOTES



## KEY CREATIVE ELEMENTS

Play space setting and description...

D7

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

As with the world description, it's important for students to describe the tools players will be able to use in the world, especially if the player will assume a role that affects or changes props or the world in any way. Many of the descriptions here will emerge naturally if designers have been very specific in responding to prompt D5.

INSTRUCTOR NOTES





## CHARACTERS

The player acts as... and has specific props, features.

D8

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Generally, students will assign the player to the role of protagonist, anticipating that she will be the hero of the game at the win state.

The descriptions created in the previous prompts should roll up into a concise and compelling description of how the player moves through the world and what she must do to win. If power-ups or health meters are tied to performance, rewards, and achievements, designers should include those details here.

INSTRUCTOR NOTES



## CHARACTERS

Protagonist(s):  
Powers, props and features

D9

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

If the player is the protagonist, then designers should describe her adversaries.

If the player is the antagonist, especially when designers want to offer opportunities to learn through subversive play, then the description here should include a similar breadth and depth of details required by D9.

INSTRUCTOR NOTES



## CHARACTERS

Antagonist(s):  
Powers, props and features

D10

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

In many instances, the player may be battling both other players in a multi-player game or non-playable characters (NPCs) that create specific challenges in the game.

In some instances, the “antagonist” may be elements of the world itself, especially if the world changes and the conditions of play change based on what the player does in the world. Remind designers to consider the classic narrative frames of “Man v. Himself,” “Man v. Man,” and “Man v. Nature.” The same constructs — albeit gender neutral — can provide inspiration for designing play here.

INSTRUCTOR NOTES



## LOOK AND FEEL

Overall graphic direction  
and look.

D11

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

This prompt may often be considered alongside D7 and subsequent prompts on character design.

Even if an individual student doesn't consider herself artistic or a design team doesn't include design talent, students can achieve a great deal at this stage with "looks like" illustrations taken from other game designs and web sites — with attribution of course — to create an impression for what they'd like the finished game to look like.

Some students will opt to be very specific about their examples and documentation for look and feel while others will provide more directional or impressionistic samples. Depending on your final deliverable expectations and/or individual and team skills, coaches should scale requirements accordingly.

INSTRUCTOR NOTES



## LOOK AND FEEL

Key user interface elements  
and menus.

D12

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

While students may not create sample menus at this stage in the design process, they should minimally describe the ways players will access information and navigate levels and the overall game world.

Of course, key interface and menu requirements may depend on conventions used by other games students have experienced on their target technology platform (i.e., console, PC/web, smartphone, tablet, board game, card, etc.).

Health and power meter descriptions and summaries of points, rewards, and achievements menus should also be included.

INSTRUCTOR NOTES



## LOOK AND FEEL

Key controller/input and navigation elements include...

D13

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Controller and input details emerge directly from the target platform – console, PC/web, smartphone, tablet, board game, card, etc.

Students should describe how the player interacts with the world and manipulates props, whether through keyboard, touchpad, touchscreen, or joystick. Remind them not to assume that you or others who will be evaluating their work are familiar with the tools and standards of any specific platform.

INSTRUCTOR NOTES



## LOOK AND FEEL

Music

D14

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Music can play a critical role in games yet it is often overlooked, forgotten, or not considered during the design process.

Encourage students to think about thematic or incidental music and how it might heighten the play experience (i.e., action, suspense, whimsical, etc.) or serve as a cue to the player during different levels or stages/phases of play.

INSTRUCTOR NOTES



## LOOK AND FEEL

SFX

D15

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Sound effects are another great way to add to the play experience and offer feedback to the player. “Audio punctuation marks” are an effective way to help the player navigate challenges and levels.

At this point in the process, designers should consider a short list of required SFX to demonstrate that they are considering multi-modal feedback mechanisms for players.

INSTRUCTOR NOTES





## LOOK AND FEEL

Dialogue/Character  
interaction

D16

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Designers should describe how the player interacts with other characters in the world, either through pre-defined dialogue options, open text or voice chat, or other options.

The target platform needs to be considered because some options will obviously be better suited than others (i.e., a casual game on a smartphone looks very different from an immersive role-playing game on a console or PC/web browser). Students should indicate if headphones and microphones are required for play.

INSTRUCTOR NOTES



## WHAT DO YOU WANT TO TEST?

How will play testing answer your questions about the design?

What questions do you want to answer by producing a prototype?

C1

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

A tremendous amount of work and details have been documented in the first two phases of the design process as students explore their topic and discover the game that emerges from research. At this point, it's important for designers to take a step back and ask themselves, "What am I missing?" and "How do I know if something is going to work, let alone prove fun and engaging?"

To help answer these questions and test assumptions, it's valuable to create a paper prototype. Obviously, students cannot build a complete paper prototype of their entire concept. Rather, they should define very specific issues they want to explore before they start creating their prototype.

Being diligent about preparing a script to introduce and direct play testers will also help narrow and focus the scope of the paper prototype.

INSTRUCTOR NOTES



## WHAT ELEMENTS SHOULD YOU BUILD?

Remember, you're not building the entire game. Focus on one challenge or level.

C2

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Designers should focus on a specific level or stage of play that will enable them to gain insights into specific game mechanics, scoring elements, and/or communication features.

Its also valuable to consider creating a paper prototype challenge or level that has a beginning, middle, and end so the player can get a feel for progressing through play.

Sometimes designers will want to test an early level of the game, hoping to understand what the player brings to the game and where they need to provide more — or less — information or detail. Sometimes designers will want to test more complicated advanced levels. Either is acceptable.

Ultimately, the goal here is to encourage the designer to think through the next levels of detail and to make sure members of a design team are all on the same page. Creating a paper prototype helps to clarify many issues.

INSTRUCTOR NOTES



## WHAT INFORMATION DO PLAYERS NEED?

What do your player testers need to successfully understand the context and goals of your game?

C3

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

As designers consider the scope of their paper prototypes, they should create a simple script that introduces the game to play testers and situates them in the “game world.”

If the challenge or phase being tested is from an advanced level of the game, designers should be ready to explain what the player has done to get to this point as they begin any play test.

While text and verbal descriptions are important, designers should also consider creating sample menus, navigation screens, and other visuals that represent what players might encounter during the game once its produced for the computer.

As part of the set up, designers should consider not revealing the learning goals of the game but rather asking the question, “Did you learn anything?” when the play test is completed.

INSTRUCTOR NOTES



## WHAT ARE THE LIMITS OF YOUR PAPER PROTOTYPE?

How will a digital interactive  
version of your game differ  
from the paper prototype?

C4

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Obviously, as they build a prototype with index cards, popsicle sticks, dice, plastic toys, and other manipulatable pieces, students will immediately realize the limits of what's in front of them v. the potential of what they've imagined as a digital experience.

Creating the paper prototype enables students to work through details, discuss options with collaborators, and make notes about how the "real" game will differ from the limited paper game.

By documenting questions and working through challenges with you and/or their team members, students will further define important elements of the design they've documented during the Discover phase of the process.

INSTRUCTOR NOTES



## PAPER PROTOTYPE REQUIREMENT

Describe the user-interface.

C5

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Students should consider the details they provided in response to prompts D12-D14 and create any menus, maps, or other information “screens” the player will need to complete the play test.

If information on these menus or “screens” will change during the play test, students should have a plan for indicating changes and providing updates for the play. Small whiteboards are helpful here.

INSTRUCTOR NOTES



## PAPER PROTOTYPE REQUIREMENT

Describe how you will account for chance, real-time feedback, and other features that will ultimately be managed by the game engine.

C6

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Dice and timers are helpful tools to support chance and time-based aspects of the game.

For complicated cause-effect relationships that will ultimately be mapped to data sets and managed by programming logic, players should consider creating a detailed “if-then” map to review alongside their paper prototype script. This will help them to quickly and efficiently respond to player actions during the play test.

Creating maps and scripts will also provide students with an early snapshot of the data set requirements they will need to define and build, especially if they aim to ultimately use their design document as a blueprint for digital programming.

INSTRUCTOR NOTES



## PAPER PROTOTYPE REQUIREMENT

List the observations you and your team should note during the play test and the questions you will ask players.

C7

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Before the play test begins, students should return to the questions and issues they defined in response to prompts C1-C2. They should be especially sensitive to these questions as they observe players go through the game and note the questions that play testers ask.

While students may be frustrated that they've missed something in creating the paper prototype, these observations and notes are actually incredibly helpful because they shed light on where designs need to be refined and/or more details or directions need to be provided to the player.

Also, during play testing, students may "lead the witness," attempting to over explain or compensate for deficiencies in the prototype by going off script. Encourage them to use the test as a learning opportunity and not as a pitch.

It's also good to ask play testers what they think they learned or what the designers wanted them to learn.

INSTRUCTOR NOTES





## WHAT IS YOUR FINAL DELIVERABLE?

Will it be a formal game design document or functional specification?  
Poster or flyer?  
Class presentation?

S1

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Depending on how you plan to use the Game Design Tool Kit, student deliverables can run the spectrum from a simple pitch or promotional concept document to a comprehensive design document or a pitch presentation.

Minimally, we recommend that students use the prompts to provide structure for a “Game Design Journal,” a notebook in which they write their ideas, sketch sample menus, record research citations, etc. A “Game Design Journal” can then inform any set of deliverables, as well as provide you with an ongoing record of student progress to review and evaluate.

While design documents sometimes prove better deliverables for individual student work, pitch presentations provide more opportunities for students with different skill sets to contribute during the design, development, and presentation process.

INSTRUCTOR NOTES



## ROLES

Does everyone on your team have a role in producing the final deliverable?

S2

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Again, depending on how you decide to implement the Game Design Tool Kit in your instruction, whether as an activity for individual students or as a project-based collaborative exercise for teams, it will be important to consider students' interests, abilities, and skills and how they can contribute to the design process.

In some instances, it's helpful to define specific roles such as executive producer, researchers, writers, interactive designers, artists, technical programmers, etc. for students to play on a design team. Because game production is so collaborative, the Game Design Tool Kit methodology provides an opportunity for you to enable students to engage with content along axes that play to and help to strengthen their skills.

Ultimately, you should make sure that all students play a role and have contributed to the design and deliverables, adapting evaluation strategies you use for other project-based activities here.

INSTRUCTOR NOTES



## DELIVERABLE ELEMENTS

Title and brief description, including creative set-up, game goals, and learning outcomes.

S3

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

Encourage students to write an “Executive Summary” for their design, which includes top-line details and general summaries of their concept.

We have provided examples of recommended deliverables on our web site for your review.

INSTRUCTOR NOTES



## DELIVERABLE ELEMENTS

Key features and notes from  
the EXPLORE phase.

S4

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

The EXPLORE prompts provide the framework for the front-end summary of the research that students complete, as well as a basis for the design rationale (i.e., review of notes on the four freedoms).

INSTRUCTOR NOTES



## WHAT IS YOUR FINAL DELIVERABLE?

Key features and notes from the DISCOVER phase.

S5

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

The DISCOVER prompts provide the framework for the game design description.

INSTRUCTOR NOTES



## WHAT IS YOUR FINAL DELIVERABLE?

Key features and notes from the CREATE phase.

S6

GAME DESIGN TOOL KIT

## DIRECTION AND DISCUSSION

The CREATE prompts provide the framework for the paper prototype description and play testing notes and conclusion.

Encourage students to include photos and/or video of the play test in their final documents and presentations.

INSTRUCTOR NOTES