

TECH FOR EVERYONE · TEACHER AI PROMPT SHEET

Middle School Game Development Game Development Fundamentals — Grades 6–8

Ready-to-paste prompts for generating custom classroom resources using ChatGPT, Gemini, Claude, or any AI tool. Replace [BRACKETED] fields before pasting.

5 Chapters

Grades 6–8

50–60 Min / Lesson

Game Development Fundamentals

HOW TO USE THIS SHEET

1. **Find the chapter** your class is currently covering.
2. **Choose a prompt type** that fits what you need — labs, discussions, GDDs, quizzes, career connections, etc.
3. **Swap all [BRACKETED] fields** before pasting to tailor to your class.
4. **Paste into ChatGPT, Gemini, or Claude** — middle school game dev prompts often benefit from follow-ups like "Make it relate to [specific game students play]."

CH 1

What Makes a Game?

Four Pillars: Game Loop · Player Input · Game State · Rendering · Input types

game loop

player input

game state

rendering

frames per second

30fps vs 60fps



GAME LOOP ANALYSIS ACTIVITY

Students analyze a real game through the Four Pillars framework.

Create a "Game Dissection" worksheet for Grades 6–8 students analyzing the Four Pillars of a Game (Game Loop, Player Input, Game State, Rendering) applied to a real game.

Students choose from: [Minecraft / Fortnite / Among Us / Mario Kart / Roblox / their own choice]

For each pillar, students answer:

1. GAME LOOP: "Describe the cycle that repeats every second in [game]. What does the game constantly check?"
2. PLAYER INPUT: "List every way the player controls the game. What hardware captures each input?"
3. GAME STATE: "What information does the game track? (health, score, inventory, position, etc.) What changes it?"
4. RENDERING: "Describe how the game displays what the player sees. What affects visual quality?"

Add a synthesis question: "If the Game Loop stopped running, what would happen? Has this ever happened to you while playing?"

Include a blank diagram where students draw how the four pillars connect to each other.

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PSEUDOCODE GAME LOOP

Students read, annotate, and extend a pseudocode game loop.

Create a pseudocode reading and annotation worksheet for Grades 6–8 students who are learning to read game loop pseudocode for the first time.

- Provide a complete pseudocode game loop for a simple [2D platformer / shooting game / maze game] with these sections:
- INITIALIZE (set starting values: lives, score, player position)
 - WHILE game is running:
 - Handle player input (WASD / arrow keys)
 - Update game state (check collisions, update score, move enemies)
 - Render frame (draw background, player, enemies, HUD)
 - Wait for next frame (target: 60fps)
 - GAME OVER screen

Students:

1. Annotate each line – what is it doing and why?
2. Circle every place where "game state changes"
3. Add 3 new lines of pseudocode to handle a new feature: [collectible coins / power-ups / enemy spawning]
4. Short answer: "Which of the Four Pillars does each section of this loop belong to?"

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**KAHOOT QUIZ — FOUR Pillars**

10 competitive review questions with real gaming examples.

Create 10 Kahoot-style quiz questions for Grades 6–8 students on Chapter 1: "What Makes a Game?" covering the Four Pillars (Game Loop, Player Input, Game State, Rendering) and input types (keyboard, mouse, touch, controller, VR).

For each question:

Q: [Question – max 20 words]

A) ... B) ... C) ... D) ...

✅ Answer: [Letter] – Explanation (for the teacher's answer key)

Mix question types:

- 3 "Which pillar does this belong to?" (classify examples)
- 2 "What input type is this?" (identify hardware)
- 2 "What happens if X?" (cause-effect reasoning)
- 2 "In [popular game], which statement is TRUE?" – use [Minecraft, Fortnite, Mario Kart]
- 1 "Frames per second" concept question

Make questions feel like they're ABOUT gaming, not just about definitions. Difficulty: introductory – students are new to game development concepts.

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CH 2

The Blueprint of a Game

Story & Mechanics · GDD · TDD · UI/UX · Game Balance · Development Phases · Linear vs. Nonlinear

GDD

TDD

UI / UX

game balance

core game loop

dialogue trees

environmental storytelling

Prototype → Vertical Slice → Alpha → Beta

**MINI GDD TEMPLATE GENERATOR**

Generate a student-friendly GDD template for an original game concept.

Create a student-friendly "Mini Game Design Document (GDD)" template for Grades 6–8 students designing an original game concept.

The GDD should have these sections with guiding questions under each:

1. ****Game Overview**** – Title, genre, platform, 2-sentence pitch
2. ****Story & Setting**** – Plot summary, world description, is it linear or nonlinear?
3. ****Core Game Loop**** – "The player repeatedly does:
[explore/fight/collect/build] → [reward] → [repeat]"
4. ****Game Mechanics**** – List 5 key mechanics (what the player can DO)
5. ****Player Progression**** – How does the player get stronger/better? What unlocks?
6. ****UI & UX**** – Describe the HUD (health bar, score, map). What makes it easy to use?
7. ****Characters**** – Protagonist, antagonist, 2 supporting characters with roles
8. ****Art Style**** – Describe the visual style (pixel art, cel-shaded, realistic, etc.) and justify why it fits
9. ****Target Audience**** – Who is this game for? What ESRB rating would it get and why?
10. ****What Makes It Fun?**** – Core hook in 3 sentences

Format: clean, with labeled section boxes and writing lines. Professional but appropriate for a [6th / 7th / 8th] grader.

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**GAME BALANCE DESIGN CHALLENGE**

Students analyze and redesign game balance scenarios — connects to real industry problems.

Create a "Game Balance Design Challenge" worksheet for Grades 6–8 students who just learned about game balance, OP mechanics, and PvP vs. PvE gameplay.

Include 4 scenario cards:

Scenario 1: A sword in a battle game deals 500 damage and one-shots every enemy. Is this OP? How would you balance it?

Scenario 2: A multiplayer game has a character that can turn invisible for 30 seconds. Half the players quit every match. What would you change?

Scenario 3: An RPG has 50 character classes but only 3 are ever chosen in tournaments. What does this tell you about game balance?

Scenario 4: Students design their own — give a custom weapon/ability and explain how to keep it balanced but still fun.

For each scenario: identify the problem, propose 2 balance solutions, predict if their fix might cause NEW balance problems.

End with: "What is the hardest part about balancing a game?" (1 paragraph response)

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**DEVELOPMENT PHASES TIMELINE LAB**

Students map the 4 development phases to a real game's history using research.

Create a "Game Development Timeline" research and analysis lab for Grades 6–8 students who just learned the four development phases: Prototype → Vertical Slice → Alpha → Beta → Release.

The lab has two parts:

PART 1 – Apply the Phases (no internet needed):

Give students a fictional game development story for "[Create a fictional studio called 'Nova Games' developing a game called 'Stellar Quest']" with 8–10 events in random order. Students must:

- Sort events into the correct phase
- Explain WHY each event belongs in that phase
- Identify 2 events where something went wrong during development

PART 2 – Real Game Research (internet required, 15 minutes):

Students research ONE of: [Minecraft, No Man's Sky, Cyberpunk 2077, Hollow Knight]

Questions:

- When was it announced vs. released? How long was development?
- Were there any delays? Why?
- Did it release in Alpha/Beta before full release?
- Was the launch successful? What do reviews say?
- What would YOU have done differently during development?

Include a structured response template with lined sections for each question. Reading level: Grade [6 / 7 / 8].

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CH 3

Creating Characters and Worlds

Color theory · Character archetypes vs. stereotypes · Silhouette Test · Art styles · Open world vs. Linear

archetype

stereotype

silhouette test

pixel art

cel-shaded

open world

color theory

level design

**ARCHETYPE VS. STEREOTYPE ANALYSIS**

Students distinguish between meaningful and harmful character tropes in games.

Create a "Archetypes vs. Stereotypes in Game Characters" critical analysis worksheet for Grades 6–8 students who just learned the difference between meaningful character archetypes and harmful stereotypes in game design.

Include:

1. ****Concept Review**** – A clear 2-column table showing 5 archetypes vs. their stereotyped counterparts (e.g., The Mentor vs. "wise old man who does nothing" cliché)
2. ****Analyze These Characters**** – Give 6 character descriptions (mix of games students know: [The Last of Us, Zelda, Street Fighter, Overwatch, Mario, Minecraft]). Students classify each as archetype, stereotype, or subverting a trope – and explain why.
3. ****Redesign Challenge**** – Provide 1 stereotyped character description. Students redesign them to be more complex, authentic, and interesting while keeping the core gameplay role.
4. ****Create Your Own**** – Students write a 1-paragraph character description for their game concept that uses an archetype WITHOUT falling into stereotypes.

Include a "Questions to Ask Yourself" checklist for checking their own character designs. Reading level: Grade [6 / 7 / 8].

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**COLOR THEORY IN GAME DESIGN**

Applies color theory principles to actual game design decisions.

Create a "Color Theory in Game Worlds" worksheet for Grades 6–8 students who just learned how game designers use color, contrast, and composition to guide players and set mood.

Section 1 – Color Emotion Chart: Create a table of 8 colors (include red, blue, green, yellow, purple, black, white, orange) with columns for: Emotion/Mood it conveys | Real game example | Would you use it for a hero or villain? Why?

Section 2 – Analyze a Scene: Describe a game environment in text (e.g., a dark cave with red glowing crystals vs. a sunny meadow with golden light) – students answer: What mood does this create? What colors are dominant? How does the color guide where to look?

Section 3 – Design Your World: Students plan color schemes for TWO zones in their game concept:

- Zone 1: Safe area (hometown, base)
- Zone 2: Danger area (final boss level, enemy territory)

They explain their color choices and the mood they're trying to create.

Include a reference: warm vs. cool colors and what each communicates in game design. Level: Grade [6 / 7 / 8].

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**WORLD BUILDING LAB**

A comprehensive lab where students design an original game world from concept to detail.

Create a "World Building Lab" for Grades 6–8 students creating an original game world. This is a structured design lab, not just a worksheet – students produce a real design artifact.

Lab Objectives: Apply color theory, art style selection, linear vs. open world design, and level design principles to create a fully described original game world.

Lab Sections:

SECTION 1 – World Concept (10 min):

- World name, setting type (fantasy, sci-fi, modern, historical, alien, etc.)
- Is it linear or open world? Justify in 2 sentences.
- What is the central conflict that drives the player through the world?

SECTION 2 – Art Style Selection (10 min):

- Choose: Pixel Art / Cel-Shaded / Realistic / Stylized 2D / Other
- Explain WHY this style fits your world (tone, target audience, technical feasibility)
- Give 1 existing game as a reference for the look you're going for

SECTION 3 – Zone Design (15 min):

Design 3 distinct zones with: zone name, color palette (describe 3 colors + their role), environmental storytelling element (something players discover without being told), mood/atmosphere, and one unique mechanic exclusive to this zone.

SECTION 4 – Sketch & Annotate (10 min):

Simple top-down map sketch of all 3 zones with: player start point, key locations, path connections, and 3 annotated design decisions.

SECTION 5 – Peer Review:

3 specific feedback questions to ask a classmate about their world design.

Reading level: Grade [6 / 7 / 8]. Include word count targets for written sections.

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CH 4

The Brains of the Operation

Conditionals · Loops · Functions · Variables vs. Constants · OOP · Data types · Error types · Debugging

boolean logic

function

class & object (OOP)

variable vs. constant

syntax error

logic error

runtime error

spaghetti code

**GAME LOGIC PSEUDOCODE LAB**

Students read and write pseudocode that uses Boolean logic and control structures — applied to game scenarios.

Create a "Game Logic Pseudocode" lab for Grades 6–8 students who just learned about conditionals, loops, functions, and boolean logic in game programming.

PART 1 – Read and Interpret (4 code blocks):

Provide pseudocode for these game systems. Students annotate each block and answer 2 questions per block:

1. A health system with nested if/else (if health $\leq$ 0: game over; elif health < 25: warning; else: normal)
2. An enemy AI patrol loop (while alive: move right; if wall: turn around)
3. A score function that awards bonus points for speed
4. A [loot drop / inventory / power-up activation] system using boolean flags

PART 2 – Debug the Logic (3 blocks):

Give pseudocode with one logic error each (NOT syntax – the code runs but does the wrong thing). Students find and fix it.

PART 3 – Write It Yourself:

Students write pseudocode for: "A shop system where the player can buy items. If they have enough coins, deduct coins and add item. If not enough, show 'Not enough coins' message. Track what's in the inventory."

Include pseudocode syntax guide at the top. Level: Grade [6 / 7 / 8].

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**OOP: CLASSES & OBJECTS IN GAMES**

Introduces Object-Oriented Programming through the lens of game character design.

Create a visual "Object-Oriented Programming in Games" explainer worksheet for Grades 6–8 students who are being introduced to OOP concepts for the first time through game development.

Use the metaphor of "a class is a character template; an object is a specific character."

Section 1 – Concept Introduction:

Show a "Character Class" template (not code – just a labeled diagram) with:

- Properties: name, health, speed, weapon, level
- Methods (actions): attack(), defend(), levelUp(), respawn()

Then show 3 "objects" (specific characters) created from that class: a warrior, a mage, a rogue – each with different property values.

Section 2 – Apply It:

Students create their own Class diagram (template boxes, no coding required) for:

- A basic Enemy class
- A Weapon class
- [One class of their own choosing from their GDD]

Section 3 – Why OOP?:

"Without OOP, if you have 50 enemies you'd need to write 50 sets of code. With OOP, you write it once. Why does this matter for a game with 1,000 enemies?" (Short answer, 3–4 sentences)

No actual coding required. Focus on concept understanding. Level: Grade [6 / 7 / 8].

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**THREE ERROR TYPES DIAGNOSTIC CHALLENGE**

Students classify and fix syntax, logic, and runtime errors — core debugging skill for any programmer.

Create a "Three Types of Bugs" diagnostic worksheet for Grades 6–8 students who just learned to distinguish between syntax errors, logic errors, and runtime errors in game code.

Introduction: A clear reference table showing all 3 error types with:

- What causes it
- When it appears (at writing time / at run time / always runs but wrong result)
- Example error message or symptom
- How to find and fix it

Main Activity – 9 Bug Scenarios (3 of each type):

For each scenario:

-  Game Context: [brief description of what the game is trying to do]
-  The Code: [pseudocode or code snippet with the bug]
-  What type of error is this? Syntax / Logic / Runtime
-  What is the bug?
-  Write the corrected version:

SYNTAX examples: missing colon, unclosed bracket, typo in function name

LOGIC examples: collision check is backwards (> instead of <), score increases instead of decreases, wrong condition

RUNTIME examples: dividing by zero (player at level 0), accessing empty inventory, null reference

CHALLENGE: Write a game debugging checklist for the type of error they find hardest to spot.

Include full answer key. Difficulty: intermediate – students have prior knowledge of basic coding from Chapter 4. Level: Grade [6 / 7 / 8].

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CH 5

Rules, Respect, and Release

IP / Copyright · ESRB ratings · Accessibility · DRM · Future Tech: VR, AR, Cloud Gaming, AI

copyright

trademark

patent

ESRB ratings

accessibility

DRM

VR / AR / Cloud Gaming

**ESRB RATING SIMULATION**

Students role-play as ESRB raters, applying the rating system to real and hypothetical games.

Create an "ESRB Rating Board" simulation activity for Grades 6–8 students who just learned about the ESRB rating system and content descriptors.

Context: Students are junior ESRB board members who must assign and justify ratings.

Include:

1. ESRB Quick Reference Card: E, E10+, T, M, AO – with defining content characteristics and 1 real game example each

2. Rate These Scenarios (5 game descriptions):

For each: game title (fictional), brief content description (violence, language, themes), student assigns rating + lists applicable content descriptors + writes 1-sentence justification

Include these types: [a classic E-rated platformer, a T-rated fighting game, a war shooter, a horror survival game, a social simulation]

3. Your Game Concept: Students apply ESRB standards to their own GDD game concept – assign their game a rating and explain every content decision.

4. Discussion: "Should middle schoolers be able to buy M-rated games without a parent? What is the rating system trying to protect? Does it always work?" (Structured debate format: pros, cons, your opinion)

No word banks – students must use their own knowledge. Level: Grade [6 / 7 / 8].

**GAME ACCESSIBILITY AUDIT**

Students research and evaluate the accessibility features of a real game.

Create a "Game Accessibility Audit" research worksheet for Grades 6–8 students who just learned about accessibility features in game design.

Students research ONE game from this list: [The Last of Us Part II / Celeste / Forza Horizon 5 / Minecraft / God of War] – or [allow student's choice with teacher approval].

The audit evaluates accessibility features across these categories:

1. VISUAL – colorblind modes, subtitle options, text size, contrast, screen reader support
2. AUDIO – subtitles, visual cues for audio events, volume controls by category
3. MOTOR – remappable controls, one-handed play, slow-motion or auto-aim options, toggle vs. hold buttons
4. COGNITIVE – difficulty presets, tutorials, objective reminders, pause anywhere

For each category:

- Feature present? Yes / Partially / No
- Describe the specific feature (or its absence)
- Who does this help? (describe the disability or challenge it addresses)
- Rating: ★★★★★ Excellent / ★★ Good / ★ Needs improvement

Final reflection: "Which accessibility feature from your research would you add to your own game design and why?"

Include a brief introduction explaining why accessibility matters in game development (industry stat welcome). Level: Grade [6 / 7 / 8].

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**FUTURE OF GAMING — DEBATE & ESSAY PREP***Structured materials for a Socratic seminar or written essay on emerging gaming technologies.*

Create a structured "Future of Gaming" discussion and writing preparation packet for Grades 6–8 students who just finished a Game Development Fundamentals course.

The packet covers 4 emerging technologies: VR/AR, Cloud Gaming, AI in Games, and one student-chosen topic.

For each technology include:

1. A 3-sentence factual overview (student-friendly language)
2. 2 specific real examples (real games/companies using this tech right now)
3. "The Promise" – what it could make possible
4. "The Problem" – current limitations or ethical concerns
5. A discussion question that connects to Chapter 5 themes (IP, accessibility, responsibility)

Discussion Questions (for Socratic Seminar):

- "If AI can generate infinite game content, what happens to game designers' jobs?"
- "Should cloud gaming companies own your game progress, or should you?"
- "Is VR gaming an accessibility tool or a new accessibility barrier?"
- [Add 1 question specific to a recent gaming news event your class discussed]

Essay Prep – Writing Prompt Option A (argument):

"Choose one emerging technology from this chapter. Argue whether it will make gaming better or worse for players. Use evidence from the chapter and your own gaming experience."

Essay Prep – Writing Prompt Option B (informational):

"Explain how ONE emerging technology will change how games are made, played, and sold. Discuss at least 2 impacts on the industry."

Include: thesis statement template, evidence organizer, and a "connect to course" section reminding students which chapters connect to each claim. Level: Grade [6 / 7 / 8]. Length: [300–400 / 500–600 / 750+] words.

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Customization Quick Reference

Common variables across all prompts — swap before pasting

Variable	What to Replace It With	Examples
[Grade 6 / 7 / 8]	Your students' grade level	6th grade, 7th grade, 8th grade
[popular game]	Games students actually play — ask your class!	Minecraft, Fortnite, Roblox, Elden Ring, Valorant
[game for research]	Assign specific titles or let students choose	Must be age-appropriate for your school policy
[essay length]	Your word count requirement	300–400 words, 500–600 words, 1 page
[recent news event]	A current gaming industry story	Recent game delays, studio closures, AI art controversies
[GDD concept]	Connect to the student's own game design document	"Using the game concept from your Chapter 2 GDD"

💡 PRO TIPS FOR MIDDLE SCHOOL GAME DEV PROMPTS

Name the games they know: Mention Minecraft, Fortnite, or whatever students play — it instantly makes abstract concepts concrete.

Connect to the GDD: Add "Connect this activity back to the student's own Game Design Document" to any prompt for cohesion across the course.

Industry relevance: Add "Include 1 real industry example from a major game studio (Nintendo, Riot, Valve, etc.)" for authentic connections.

Differentiation: Add "Include a scaffolded version for struggling students and a +1 challenge extension for advanced students."

Current events: Follow up any prompt with "Update the real-world examples to include something from 2025" for fresh content.

Tech For Everyone · Middle School Game Development — Teacher AI Prompt Sheet · Game Development Fundamentals (Grades 6–8)

For internal teacher use only. Customize prompts freely for your classroom needs.