
# Coaching Guide

2018-2019

12th Annual Oregon Game Project Challenge

www.ogpc.info

# 1. Introduction

Thanks for taking the first step toward creating a new OGPC team! OGPC is unique in that it introduces middle and high school students to design, planning, and implementation basics coupled with science and technology. There are many competitions out there for art, animation and other creative endeavors, along with several coding competitions. OGPC takes these technical and creative skills and brings them all together, along with marketing/promotion, creative design, and project management.

Teams of up to seven middle or high school students use their talents in programming, art, sound/music, writing, and more to create computer games designed to be fun, challenging, and innovative around a socially responsible annual theme. More than just a team, each group of kids is essentially their own game studio, taking their game from concept to execution. They need to brainstorm a game, create it, and then market it. At the showcase event, teams present their games to industry professionals to try for awards in several categories.

As a coach, your job is two-fold: keep the participants on track and handle official duties like communicating with OGPC and registering for the event. Each team runs differently. Between middle school and high school, programming-heavy vs. art-heavy teams, and just the uniqueness of everyone involved, coaches need to find the best way to make their team shine. This guide aims to provide you with enough guidance to be able to start that process.

# 2. Team Basics

## 2.1 What is a Team?

A team is any group of kids producing an entry, that is, a game. Teams are usually affiliated with schools, but they can also be part of 4-H, Boys'/Girls' Club, or even a homeschool co-op. Clubs or classes working on OGPC often have more students than the maximum of seven per team. In this case, students should organize into separate teams. There is no limit to the number of teams a school or organization can bring.

Teams are also not necessarily perpetual. A school can decide to have a team named after their mascot, and keep that team name every year as new kids join. A group of friends might start a team and come up with a fun name, then reuse that name each year, even though the members could change each time. Other times, students have fun coming up with a different name each year.

## 2.2 Starting a season

Each November, the competition season is kicked off at an event called the Game Jam. Students do a guided brainstorming activity and learn the theme. This is not a required event, but is very helpful, especially for new teams. Game Jam is held at multiple locations to make it easier for all teams to attend. After the kickoff, the season is officially open.

Once the season starts, students decide if they want to compete and teams usually start forming. The first goal is to help the kids to dig into the theme, continue their own brainstorming, and start designing what a game might look like. Encourage the students to read the achievements and theme guides, or even read them together as part of the meetings. The better they understand the details, the less chance they will miss important things later.

Once everyone fully understands OGPC, the theme, and how achievements work, they can dig into their game concepts more. As ideas coalesce, kids will usually focus on the parts that they identify with the most. The team members will probably jump around between ideas, without necessarily taking on specific roles. It's important to keep the structure as loose as possible at this point so concepts can develop.

TIP: Try to capture as much of the early design process as you can. Being able to show judges how an idea went from concept to completion improves an entry's score.

# 2.3 Forming teams

Once it's clear who will be working together, kids may want to start thinking of a name for their team/studio. Names like The Dragons, Bit Warriors, Interactive Collective, or any other creative names are great. Along with the name, artistic students can come up with the team logo. They can just use a placeholder for name and logo at first though if that's easier.

Team members will usually specialize in different areas, though it's common to wear several hats. No single member needs to know how to do everything. Since OGPC is all about collaboration, kids take on the areas they know or want to learn and can specialize in that. However, it is important that all members of the team are aware of how things fit together. If the artist really just draws and never pays attention to the actual game, that will come out in judging. Everyone is an equal partner! A successful team should include:

- Artist: This person creates the pictures used in the background, the moveable images for characters or items (sprites), or maybe 3D models.
- Musician: This person creates music for the game. Not all games use music, but it makes a better experience when it's there.
- Programmer: This person writes code, or uses visual coding tools like Scratch or GameMaker
- Sound creator: This person makes any sound effects, such as footsteps, picking up an item, power up, or whatever else is needed.
- Writer: Most games tell a story. The writer creates the descriptions, character dialog, and any other elements that tell that story.
- Marketer: Part of a successful game is marketing! The marketer comes up with your booth layout, team logo, t-shirt design, and elevator pitch.
- Leader/manager: Coaches help to keep teams on track and make sure they follow OGPC rules and policies, but students should lead their own teams. This may involve keeping a schedule, keeping a master task list, and making sure that everyone's efforts are coming together.

You'll want to add your team(s) and members to OGPC's TMS (Team Management System, https://tms.ogpc.info) early in the season. Many scoring achievements (sec. 4.4) come from this page, so filling it with details and having every team member join it will make things easier later in the season. TMS will be discussed in greater detail later (sec. 3.6).

## 2.4 Work meetings

There's no one way to run team meetings. They could be daily, weekly, or as-needed. Some teams, especially at the high school level, work mostly independently and will just meet as needed. Coaches don't need to be any more involved than makes sense. As long as you are following the OGPC Coaches mailing list, you will know dates, deadlines, and announcements so you don't miss anything.

## 2.5 Season activities

While the students are working on their games, be sure to find time for them to have the game tested by friends, family, and even other teams. It's easy to get locked into a mindset and not be able to notice problems. An objective outsider may see a problem with gameplay or a hole in the story that a team member isn't aware of. This is a great opportunity for team members to learn to listen! It can be hard to hear criticism (even if it's just suggestions). Being able to objectively hear this input will lead to a better game as the more perspectives feeding into it, the more complete it will feel.

TIP: Getting feedback early and often can really make a difference in the final product. Teams don't want the judges to be their first audience!

Some students may not have as much to do or aren't even particularly excited about the game-making process itself. That's ok! There are jobs for them too. Here are some ideas:

- Come up with a team logo
- Come up with a game logo
- Design the team t-shirt
- Design the showcase booth (described later)
- Create marketing materials (game packaging, posters)
- Help write the elevator pitch
- Test the game: Quality assurance (QA) is vital. Break things, find bugs, look for problems.

# 2.6 Curriculum

At some schools with computer science programs, teachers integrate OGPC into their curriculum. This provides a targeted goal for students to work toward during the class. The game entry could be graded as a final assignment in addition to being entered. Most of the achievements represent best practices and could be used as a basis for grading. We don't have any specific resources to enable that but encourage interested teachers to use the OGPC PLC (professional learning community) to get ideas from other coaches. Creating an OGPC entry is a great cross-cutting activity that could even be integrated into multiple class subjects.

# 3. Getting to work

For many new coaches, especially those without a computer science background, the thought of actually making a game can be daunting! Your students may also be trying this for the first time and might feel apprehensive. The good news is that you don't need to know how to make a game to lead your team to success. There are a great number of YouTube tutorials, and most game tools come with sample games and tutorials. For a good list of resources, check out the Resources page on our web site (http://www.ogpc.info/game-resources/). There are also some pointers in the Competition Manual found on the Participate page of our site.

## 3.1 Terminology

Games and game production have their own specialized vocabulary. Before you start reading through the resources or competition manual, you may want to get familiar with some of it. Even though the coach doesn't need to focus on these details, it helps to have at least a basic understanding of terms and concepts like *programming languages*, *engines*, *assets*, and *game logic*. A glossary with some common terms can be found in section **Error! Reference source not found.**.

## 3.2 Planning

### Failing to plan is planning to fail

Getting started on a game can seem daunting. Often, team members get so excited about the game they want to create, that they just want to jump right into it. This is a mistake though. Teams are limited in the time available to create the game. Without a solid plan in place, students will each have their own vision and will likely be at odds with each other. Work will need to be redone, and feelings will inevitably be hurt.

At the Fall *Game Jam* (see http://www.ogpc.info/events), students go through an exercise called *Gamestorming* (also available at http://www.ogpc.info/game-resources#gamedesign) to help them see the benefits of planning and how they might structure their efforts. It's not enough to just come up with a title and quick description of the game. By planning and discussing, weak points will be strengthened, and everyone can become part of the process.

Students should come up with a few sentences that describe the game. Once everyone agrees on that, they can start outlining the story, identifying characters, and thinking through the flow of the game. What are the motivations and goals of the characters?

What conflicts will they encounter? How will the player relate to the story? Planning documents should include information about the player's character, other characters they will encounter, items, locations, and actions they can perform.

TIP: Make sure the team is coming up with ideas that are family- and school-appropriate. Mature games cannot be shown at the event.

As they go through this process, team members will begin to form an image of not just the visual aesthetic of the game, but also the general feel of it. Using sketches and diagrams, they can establish the visual style, along with the gameplay style. The artist(s) can start thinking about what they need to create, which sound effects will be needed, what kind of music should be written, and what else is needed. The programmer(s) may need to reign in features that aren't feasible.

All of this helps to create a plan and a roadmap for the game. Each team member will know what they need to get done, and it will be possible to track progress. By setting dates on a few milestones, it will also be apparent if things are getting behind schedule and items need to be cut.

## 3.3 Documentation

Teams that want to score well will keep track of their diagrams, brainstorming, pictures, and anything that documents their process from start to finish. This includes the discussions, decisions, and changes that happen along the way. Some teams use folders or binders, others scan or photograph everything and keep it online. There's no single way to do it right. In some cases, just talking about certain things is enough to satisfy the achievements but err on the side of keeping too much! In general, if the team is fully aware of the achievements, they'll have a pretty good idea of what to have ready.

For written documents, consider using an online solution like Google Docs or Microsoft Office Online. This allows everyone to read and contribute, it can't be lost, and you can even use revision history to keep track of changes. The more that's kept online, the less likely it is for your student's hard work to be lost or damaged.

When it comes time for the competition (section 4), you may want to print out any online documents. Though OGPC provides internet access, plan for the unexpected. It may also be easier for judges to page through a hard-copy than scroll around in different browser tabs.

## 3.4 Building

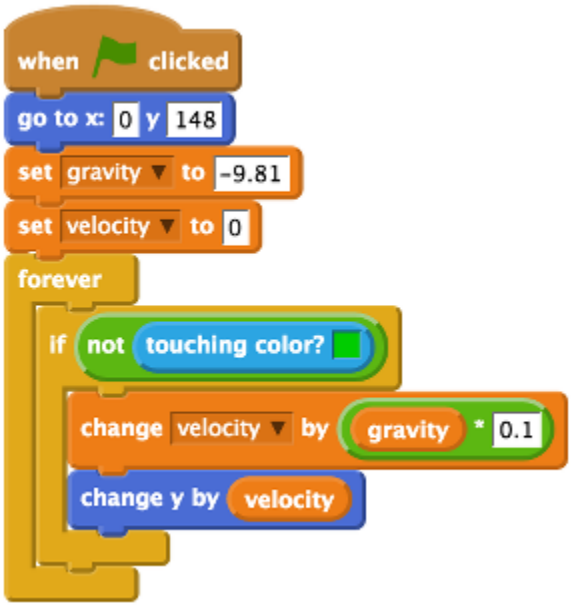
As with any project, once you break a game down into individual tasks and work items, it becomes approachable. Game building tasks include drawing backgrounds and animation frames, recording sound effects, composing a tune, writing dialog and story, and writing the game logic that brings it all together.

As a coach, remind them to be taking notes during all of their meetings (perhaps a job for the leader/manager). Take pictures during the meetings (or make sure they designate someone) to show the students at work, or things they write on the whiteboard. OGPC strives to inspire best practices throughout the season, and taking notes helps to show judges what was accomplished.

There are many tools available for building a game. The Resources page on our web site (http://www.ogpc.info/game-resources) has a list of products, many free, that the students can use, but if they are already familiar with specific drawing, composition, or animation tools that are capable enough, there's usually no need to change them.

Through the planning process, the students should have a list of the assets they'll need to create.

If your team has experienced programmers on it to begin with, they will likely already have preferences for the tools that they use. If your team is brand-new, you'll want to start with a tool for beginners like *GameMaker* or *Scratch*. These tools simplify the process, so students don't actually need to learn a written programming language. Instead, they just drag visual command blocks to connect them together and customize the properties of those blocks according to their needs. This means that kids can focus on the end result rather than learning all the ins and outs of a particular language.




*Visual programming with Scratch*

Teams need to find ways to work on different parts of the game in parallel. Programmers will often have to build the game using placeholder art or sounds until the real things are finished. If time runs out, a placeholder will show a judge what they have in mind. If there are multiple programmers, they need to be careful to avoid working on the same parts of the code as each other and they will need to figure out how to efficiently merge different changes back into one program.

## 3.5 Iterating

Once students have started working, they might be tempted to work by themselves until they finish all their piece(s). The best teams step away from their work periodically to regroup and make sure that the plan is still good. It's important to follow a plan, but

there's no shame in updating that plan through the process. It may turn out that the artist doesn't feel like things are coming out right, or the programmer may decide that a certain feature just isn't feasible after all. By coming together, the team can decide together if they need to adjust the plan.

Instead of thinking of the game as a single goal at the end of the season, it can be helpful to think of trying to publish a version (also called a build) of the game every 2 weeks. Each build is a milestone where the goal is to add new features and produce a working product that someone can play. This makes it easier to identify issues quickly.

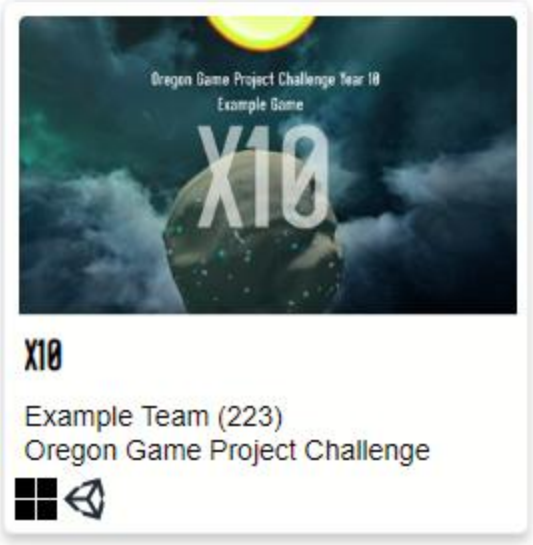
As milestones are reached, it can be useful to get feedback from other students outside of the team. Something that makes sense to the team members might need more explanation for new players. It's hard to be a critic of your own work, so getting this feedback can point out things that are missing that will ultimately make for a better game.

If there are members of the team that are between tasks, they can switch to testing the finished parts of the game to look for trouble spots (quality assurance). Even if they aren't reasonable to fix, they can be documented. No one is expecting a commercial quality game! Being able to talk about bugs and game limitations is as important as talking about what works.

As the competition gets closer, it may be time to start reducing the scope of the project. The team should focus their energy on the most important tasks. It can be helpful to think in terms of creating the smallest playable pieces like single levels, UI screens, and mini-games. Instead of having 10 half-finished features, they can strive for 5 finished ones.

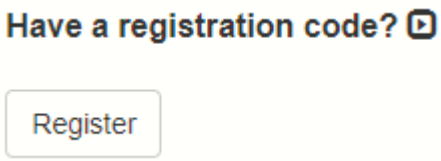
## 3.6 Team Management System (TMS)

TMS (https://tms.ogpc.info) is the web site where coaches register their teams and team members manage their entry. Teams are associated with their school or organization and can add their entry for each season. Each team member registers individually on TMS (with their own profile) and connects to their team and game entry. Game pages include the game logo or promotional poster, a team photo and logo, descriptions, and screenshots and design images. Judging occurs directly from within TMS so having complete information is critical. TMS also makes it possible for teams to share their games with people outside of OGPC for years to come.




Coaches will need to use the appropriate special code to register for TMS or their account will be created at the student level. This code will be shared on the coach mailing list each year. If something goes wrong with your account, simply contact OGPC to fix it.

On the registration page, look for the "Have a registration code?" link:

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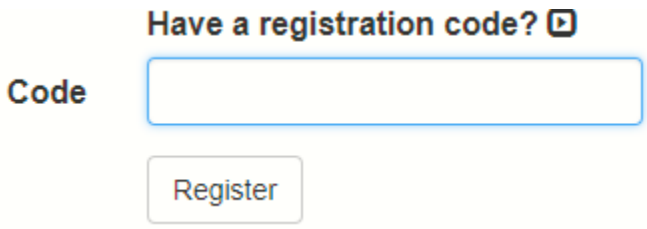


# 4. Competing

Also known as the "Main Event," the Showcase Event is the place for students to show off their hard work. There are multiple take-aways from the event:

- Showing off the team's work
- Seeing other teams' work
- Socializing with other teams' members
- Receiving constructive feedback from a panel of judges, some from the game industry
- Opportunity to learn about higher education, the game industry, and other topics relevant to the students' futures
- Recognition and Awards ceremony highlighting achievements in different categories, judges' choice, and people's choice

OGPC strives to create an experience that is rewarding and fulfilling for every member of the team. The programmers, designers, artists, musicians, etc. who make the game will be able to talk about it, while the marketers and promoters can talk about their booth and the business-oriented aspects of the work.

## 4.1 Goal

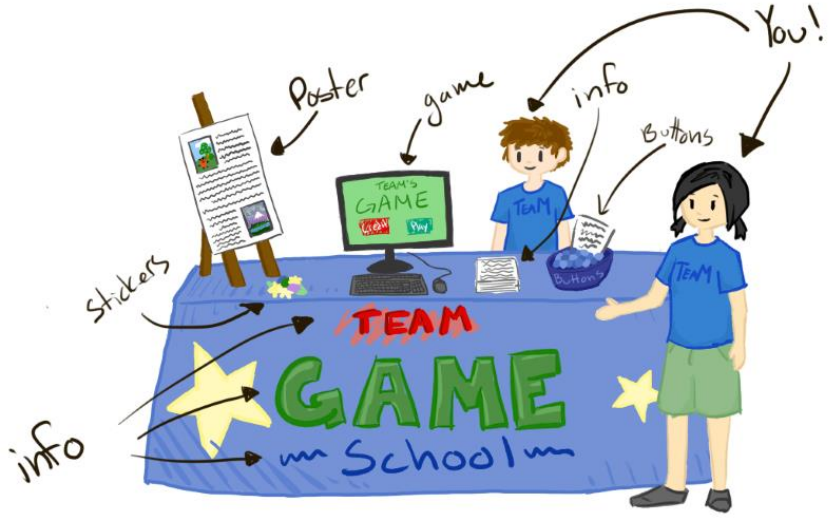
More than anything, OGPC is about fun and collaboration! It's not about winning, and it's not even about being finished. We have many games that are brought even though they aren't finished yet, sometimes not even in a playable state. The kids should be having fun, working together, and feeling good about their efforts. No matter how much they have gotten done, as the main event looms, a first-time team will often feel like their game is not finished. Instead of panicking, encourage them to just polish up what they have as much as possible, and sketch out where they were heading. Being able to show the process is what will get the most points from the judges.

Remind the students that this is more about the journey than the destination. Unfinished games with excited, invested team members can still win awards!

## 4.2 Exhibiting the team's work

At the Showcase Event, each team will have a six-foot table to create a booth for their game entry. If you've ever been to a conference, you've probably seen the tables filled

with brochures, an example of a product, and a smiling person ready to tell you all about it!




OGPC booths are similar, with the product being the game. The booth can have a banner for your school and team, logos for your team and game, posters, figures you create, brochures, and anything else to make a splash. Of course, the main attraction is the game! Teams bring computers, monitors, controllers, or whatever else is needed to show off their game as the centerpiece of the display (absolutely nothing is provided except the table, a single electrical outlet, and a wireless internet connection). It's best to give some thought to how this will look before the event, possibly even decorating a table for practice.

## 4.3 Elevator Pitch

Have your team imagine they've just spent all this time working on their game, and now they want to make it to the big time! They are at a conference or expo, they get in the elevator… and there's a big-wig from the biggest game studio. They have as long as it takes for the elevator to get to his or her floor to sell their game.

In the industry, this is called the "elevator pitch." It is expected to be around thirty seconds, just 3-5 sentences even, and should convey all the greatest parts of the game without actually showing off the game. The phrase "high density" is about communicating the maximum impact through the fewest words. This means that there isn't time to provide all the backstory or describe exactly how the characters look. This is about explaining the value of the game and what makes it unique.

Start with what stands out: “Trog’s Quest is a game about figuring out who you are.” Don’t say: “Trog’s Quest is a 3d platformer with cool music.” Lots of games are 3D, platformers, or have cool music. Fewer games are about finding yourself.

Now bring up the theme to make this clear as soon as possible: “With this year’s theme of ‘enhancement’, we decided to make a game where the goal is self-improvement.”

Next, say a few words about game features that you are the most proud of: “We built a unique move system that uses the character’s mood, time of day, and the current scene to determine where you can move.”

Mention some of the assets you are proud of: “We hand-made all of the 3D models to fit our visual theme” or “we wrote the music of each level to show how the character is getting closer to acceptance.”

Finally, make your conclusion. “We think Trog’s Quest embodies the theme, has a unique game style, and is lots of fun!”

A great way to prepare is for the team to present their elevator pitch to people who don’t know anything about the game, even complete strangers. For example, they can tell a reporter about the game for an article. The reporter probably doesn’t want to hear every detail. What can they say quickly to impress them?

## 4.4 Scoring

In OGPC, points are earned by getting achievements across various categories. The points from these achievements are used to determine the top ranked teams so the judges can determine winners. Since the goal relates so strongly to collaboration and process, the game itself factors in less to points than you might expect. Most points are objectively given based on following industry best practices as laid out in the achievements guide.

It’s imperative that every member of the team be familiar with the Theme Manual and Achievements Guide. This helps to minimize misunderstandings and keep everyone working toward the same goal. Some teams find it helpful to keep the achievements as part of their roadmap for the season. One of the members may want to have the task of keeping track of what they still need to work on or choose not to focus on.

Since the achievements are based on best practices, teams that pay the most attention to them will often have a more successful project with a better outcome. Of course, this will also lead to better scoring, but more importantly, it means they’ll get the most out of the

season. Middle school teams may need some guidance to understand how the achievements relate to what they're doing.

## 4.5 Judging

Judging takes place at teams' booths/tables with no need to relocate or get things working on a different device. There are prizes given for the categories of Game Design, Art and Assets, Theme and Style, Professionalism, Programming, along with other focus areas such as Peoples' Choice and Rookie (see the Achievements Guide for more details). To cover the various categories, judges come over as a group to assess the entry and to talk with the team.

The actual judging process consists of the judges asking questions of the group or of individual contributors, checking to see which achievements have been earned. For some questions, oral responses alone will suffice. For others, the team will also demonstrate their work by showing items on the table, papers, art or music files, programming code, or the game itself. During this process, some questions will be directed at the group, while others will be directed by a category judge toward the most relevant team member.

Teams are split into middle school and high school divisions and only compete within their division. Some teams will prioritize art over story, or programming over music. The different prizes work to create more opportunities to recognize the many great games that are entered.

## 4.6 Registration and Milestones

- November: Game Jam
- April, registration for the showcase event (including payment), ends one week before event
- May, Main Showcase Event at Western Oregon University

Make sure you get on the coaches mailing list and professional learning community as early as possible to stay up-to-date. Send your name and school/organization to *info@ogpc.info*. We'll send out tips and tricks, notice of informative conference calls, and plenty of reminders for registration and the main event.

# 5. Further Reading

This guide is intended to help explain OGPC to new and prospective coaches and provide guidance on starting/managing a team. Before competing, it's critical that you and your team also read the Achievements Guide (explanation of scoring), and then each season read the Competition Manual (the theme and rules). Both documents can be found on our website on the Participate page (http://www.ogpc.info/participate/#compete).

# 6. Glossary of Relevant Terms

- **Software**, **apps**, and **programs**: These are all names for tasks that a computer can perform. You've used many of these before from an on-screen calculator, to Microsoft Word, from Chrome or Firefox, to the Facebook and Spotify apps on your phone. Games are just a type of program meant for fun!
- **Programming language**: Creating programs requires a list of instructions, also called **commands** or **code**, that tell the computer how to perform the task. This includes where to put the buttons and what should happen when they're clicked, how to save files and read them later, and how often gold coins should appear for a player to grab. These instructions are written using a programming language. Just like with spoken languages, there are many to choose from. Some use commands typed out like a script, while others are more visual like a flowchart of blocks that are fitted together.
- **Game logic**: When building a game, the game logic is the set of instructions that define how the game actually works. These commands can specify how the player walks, jumps, or talks, how many points are earned for completing a task, and when to play the different sound effects. Without game logic, there is no game.
- **Engine** vs. **from scratch**: At its core, there are two ways to make a game. The first way is to use a programming language like C++, Java, or Javascript and create everything *from scratch*. This provides the most flexibility but is much more challenging and certainly takes more time. The second option is to start with the foundation already in place and extend it with the specific game logic needed. This foundation is called a *game engine*. Examples include Unity, Unreal, and GameMaker. Some engines cost money, others are free. The choice of engine can affect the types of games that are possible, and they often restrict the choices of programming language to create the game logic. It's important to choose an engine that's appropriate for the skills of a team. Most teams start with an engine. This does not imply that they are taking a shortcut.
- **Asset**: These are all of the "things" created for the game, generally referring to different types of artwork (called **graphics**), sound effects, music, and spoken voice. Games are comprised of game logic and assets.
- **Platform**: A game may be written for the PC or Mac, Android or iPhone, Xbox or Playstation. These are examples of *platforms*. Most teams choose one platform for their game.
- **2D/3D**: Creating a *2D* game means that the characters and objects are created flat, like being drawn on paper, or a decal. Creating a *3D* game means creating

assets that can be rotated and fully detailed from every angle. Calling a game 3D might seem strange since they're played on a flat computer or phone screen (although virtual reality is changing that). When a 2D game is played, objects and characters can only be viewed from one angle (for example, Super Mario Bros). In a 3D game, it's possible to move around in any direction to see the sides, back, or top of things (like Minecraft).

- **GUI** (Graphical User Interface): The on-screen controls in a game. These would include the score, buttons to pause or exit, and menus.
- **Sprite**: Image assets designed to be placed over the background image of a game. For example, the background might show a path, some trees, and the skies behind it. The character that walks on the path and the bird that flies across the sky are examples of sprites. Sprites are used in 2D games.
- **Model**: Just like the difference between a drawing of a car and a small-scale model car, models can be viewed from every side. These include the shape (called a **mesh**) as well as the colors and images that make it look real (called a **texture**). Models are used in 3D games. They take longer to create, and the tools are more complicated.
- **AI** (Artificial intelligence). This may sound futuristic, but almost all games use some form of AI to control the characters that independently interact with the player. It can be as simple as "If the player comes within this distance, start the dialog."
- **Platformer**: A typically 2D style of game characterized primarily by the player moving forward moving side to side or up and down, but never closer or farther away. This often involves platforms that the player must jump between to make progress toward the goal.
- **FPS**: First Person Shooter. In reality, an FPS game may or may not actually involve shooting. It's more about the style of walking around in all directions in a more realistic style with the player seeing the world through the eyes of the character – in first person. These are usually 3D games.
- **Cut-scene**: A non-interactive scene in a game meant to advance the story.