

# Games design and development



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*This leaflet provides an overview of the jobs involved in designing and developing new computer games. Career areas include design, development, art and animation, audio work, testing and production. Most new entrants have higher education qualifications.*

## Creating computer games

Games have come a long way since they were first introduced in the 1960s. Games designers have made it possible for us to battle the forces of evil, collect clues to solve mysteries and even build our own cities! Handheld consoles and apps also allow us to play a wide range of games wherever we might be.

A huge amount of work goes into developing a game. Think about the last one you played:

- What was the basic storyline?
- How many characters were there? What were they like?
- Were there lots of sound effects? What about music?
- What kind of scenery or backgrounds were there?

To create the game you were playing, all these elements would have been designed, developed and tested by many different people, all with high levels of technical and creative skills.

The process of developing new computer games takes years and can cost millions, and not all games in development are successfully produced. Predicting whether a new game will be popular with the public is not always easy, as both tastes and technology change. The process of creating a new game can be similar to producing a film - an idea has to be agreed, before each part of the process is assigned to an individual or a team for design and development. No matter how many people are working on a game, everyone must work together to deliver the core concept.

## What it takes

All employers look for candidates who are passionate about computer games. Those working in games design also have to be aware of all the latest developments in technology and the ways in which these developments affect games and how they're played.

Depending on your role, to work in games design and development you may also need:

- a good imagination and creative skills
- to be able to work well in a team
- technical expertise - for many roles
- problem-solving skills
- the ability to work to strict deadlines (sometimes involving long working hours)
- perseverance and patience, as it can take several years to develop a new game!

Although certain skills are in demand in the games industry, it's not always easy to get a foot in the door. You should build up a **portfolio** of your work, to demonstrate your skills and commitment when applying for courses and jobs. Read up on the latest games topics and try to get as much relevant experience as possible; this could be through a part-time or holiday job, an internship, a sandwich course (see below under 'higher education'), by entering competitions or even through involvement in 'modding' your favourite games.

## Employers

Career opportunities are available with independent games developers and with some games publishers who run their own games development studios. Employers range in size from those employing only a few people, to international companies that employ hundreds of staff. Some companies focus on only one area of production, such as animation or art work, and may work under contract to another developer on a single aspect of a game.

Many of the jobs involved in games design and development are also found in other sectors; you can find out more about some of the careers mentioned below in the Related Leaflets section.

## Job areas

Bear in mind that job titles vary from one employer to another, and roles and responsibilities often overlap. For instance, in a small organisation or where budgets are limited, one person may be involved in both design and development.

### *Design*

Games design is all about setting the scene, defining the key features and leading the development of a new game. The work may be carried out by a **design team** fronted by a **lead designer** (and perhaps a **creative director**), or by a single **games designer**.

The designer may be commissioned to develop a concept for a game - perhaps an idea that has resulted from market research. Alternatively, sometimes designers develop ideas of their own, which they 'sell' to games developers/publishers or even self-publish; if you go down one of these routes, be sure to get plenty of advice.

Essentially, the designer turns an original idea into a plan for development. The designer is usually responsible for making decisions on:

- the basic aim of the game and its rules
- the structure of the game (e.g. the number of levels and how they fit together)
- the look of the game, the settings and landscapes
- any characters, including opponents and their missions
- props, e.g. vehicles, weapons and special powers/abilities.

When the designer has made decisions on all these elements, they have to communicate their ideas to the rest of the team. The designer has to have a clear understanding of the target audience and how they want the game to play. They must then ensure that the rest of the team also works to create the same vision.

A **scriptwriter** may help to draw up the initial outline, develop the storyline and characters, and supply dialogue. Scriptwriters may be employed or work on a freelance basis.

Designers need to have excellent communication and organisational skills, particularly if they are also involved in editing/producing and must ensure a game is developed within budget and on time. In order to explain some of the technical requirements to other members of the team, an understanding of software and programming is also useful. There is no set route into this area of work, but games designers are usually graduates with a few years of industry experience. Many people move into this role after gaining experience in other areas of the games industry.

### *Development*

**Games developers/games engine developers** are concerned with the more technical aspects of the game - they use games engines (software frameworks) to turn the designer's idea into a reality on screen. Games developers may be involved with creating prototypes at the very start of the development process or be asked to find a way to create something the designer has imagined. It's possible to specialise in a particular area of development, such as **artificial intelligence** (AI) or **virtual reality** (VR) programming.

As most computer games involve a huge amount of coding, the development of a new game usually involves a whole team of developers, who work on different aspects of the game (perhaps under a **lead developer/programmer**). In addition, games developers may have to make the game suitable for different platforms, e.g. a games console, laptop or smartphone. They will work with other specialists such as games testers. Developers usually have a relevant higher education qualification.

## **Art work**

A number of different **artists** work together to create the visual elements of a computer game, often using specialist digital tools. Everything the player sees on screen is created by an artist - including the background scenery (trees, buildings etc), vehicles, objects and characters. Artists may specialise in one of these features, or work on texture, concentrating on giving objects a 'real-life' look. To find work as an artist, an art-related higher education qualification is usually required.

**Animators** use special 3D-animation software packages to give movement to the characters created by the artists. You can find out more about this in the leaflet on *Animation*.

A team of artists and animators may be headed by a **lead artist** who will define the look that the other artists must achieve, and manage the schedule and budget for the artwork. Sometimes there is a **technical artist**, whose role includes liaising between the artists and the developers; up-to-date technical knowledge is required for this role.

## **Audio work**

The majority of computer games involve a sound track, whether it's background music, character dialogue or special effects such as a cheering crowd or a gunshot. Depending on the size and scope of the production, **voice actors, composers, musicians, sound effects designers** and **audio/sound engineers** may all be involved. Many people working in the technical aspects of audio work have higher education qualifications; for information on careers in this area, refer to the leaflet on *Sound recording and related careers*.

## **Quality assurance (QA)**

Jobs in **QA** involve testing new computer games and reporting errors, which have to be corrected before the game can be released. **Games testers** have to play games (repeatedly) and report any problems clearly to the games developers. Testers look for any software bugs as well as spelling mistakes, continuity errors etc. They must also compare the game to the brief supplied by the designer, to ensure that it plays as the designer intended. The tester may suggest ways in which the game could be improved.

Many new entrants to the games industry start in a testing role before moving on to other careers, such as games design. Testers do not necessarily need particular qualifications for entry, but must have a lot of playing experience, good written and spoken communication skills, a logical mind and an organised and methodical approach. Knowledge of programming is useful. Not surprisingly, there is keen competition for these jobs - and some roles may be on an unpaid (voluntary) basis only.

Experts in **user experience (UX)** test how well a game will be received (although they may also be involved at different stages of the development process). UX staff are experts in human-computer interaction. They test the end-user's emotional reactions to a game, e.g. by using eye tracking, special headsets, video recordings and detailed interviews.

## **Production work**

While not directly involved in producing the game itself, production work is all about making sure the whole project progresses smoothly and stays on track. People involved in production liaise between the different teams involved, and may manage any work that is outsourced. In the final stages of development of a game, they may be involved in pre-release publicity.

Roles range from **assistant producer** through to **project manager** (or **producer**), who takes overall responsibility for bringing a new game successfully to the market on time and within the budget. There is no set entry route into production work, but most entrants hold higher education qualifications and/or may have gained relevant experience.

## **Entry, education and training**

For some careers in the games industry, including those in production, there are multiple entry routes. For others, a particular background is normally required, such as in art, computing, animation, graphics or music. **To find out more about routes into various areas of work, refer to the leaflets in this system that interest you (see the Related Leaflets section).**

While at school, depending on the area of games design/development you want to work in, useful **GCSE** (or equivalent) subjects include maths, English, science (particularly physics), computer science, art and design, and design and technology.

After taking GCSEs (or equivalent qualifications), a relevant **level 2 or 3 qualification** can give you a useful background for working in the games industry (or prepare you for further study). For example, the following are available:

- BTEC Level 1/Level 2 First and Level 3 National qualifications in creative digital media production
- OCR Level 2 and 3 Cambridge Technical qualifications in digital media
- the BTEC Level 3 National Extended Certificate in digital games production
- the BTEC Level 3 National Diploma in digital games design and development
- AIM Qualifications Level 3 Diploma/Extended Diploma in games, animation and VFX skills
- the T level in digital production, design and development (available in selected schools and colleges in England).

Some **private organisations** offer training in aspects of games design or development. Before signing up for any such courses, check exactly what qualification the course leads to and what previous students have gone on to do.

The **NextGen Skills Academy** is backed by major employers. It offers, for example, Level 3 Diplomas in games, animation and VFX skills (see above) through a network of further education colleges, and various short courses. For details, see:

[www.nextgenskillsacademy.com](http://www.nextgenskillsacademy.com).

It may be possible to enter the games industry (or learn the skills needed for a career in games design/development) through an **Apprenticeship**. Apprenticeships offer structured training in the workplace. There is a Degree Apprenticeship in England (at masters degree level) for game programmers, but other Apprenticeships are available at different levels, for training in a range of tech job roles. You can find out about Apprenticeships in general by viewing:

[www.apprenticeships.gov.uk](http://www.apprenticeships.gov.uk)

[www.careerswales.gov.wales](http://www.careerswales.gov.wales)

Most entrants to the games industry hold higher education qualifications. **Foundation degree, HNC/D and degree** courses are available in subjects such as games development, computer games technology, and games design. Some courses focus on more specific areas of the work, for instance, games programming, games art, games animation and visual effects, graphics for games, games production, and sound for music and games.

You should look carefully at the range of higher education courses on offer, to see what each involves. In general, courses that lead to a BA degree usually cover creative areas, such as the visual appearance of games, whereas BSc courses are likely to focus on more technical aspects of development and design, although this isn't always the case. Games development is a competitive sector; try to find out about the destinations of past students, as employment rates from different courses vary. **Sandwich courses**, where students spend a period in industry as part of the course, are available and provide the opportunity to gain valuable work experience and the chance to make useful industry contacts. Otherwise, check if the courses you are looking at offer the chance of shorter work placements or have other links with employers.

For entry to a higher education course you normally need A levels, or equivalent level 3 qualifications. **It is important to check course entry requirements carefully with individual institutions and through [www.ucas.com](http://www.ucas.com).**

Specialist full- and part-time **postgraduate courses** are also available. These are mainly aimed at graduates with a degree in a relevant subject (or, possibly, for entrants with equivalent professional experience), but a few courses are open to graduates from a wider range of degree disciplines.

## Pay and prospects

There are no set pay rates in the games industry, but as a guide games designers, developers and artists may start on around £20,000. With experience and more responsibility, salaries can increase to £45,000+; those at senior management/director level may earn £60,000+. On entry, computer games testers may earn from about £18,000.

With experience you may be able to progress from a junior games designer/developer role to a more senior position, e.g. leading a team and/or taking responsibility for certain aspects of the work. Self-employment may be an option.

Once employed in the games industry you will need to continually update your skills and knowledge as both the technology and user expectations change.

## Further Information

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**TIGA** - the trade association for the UK's games industry and also accredits computer games-related higher education courses. For information about the industry, and job vacancies, see:

[www.tiga.org](http://www.tiga.org)

**ScreenSkills** - the skills body for the screen-based industries, including games. For job profiles and information on entry routes, training, careers events, bursaries, mentoring and so on, view:

[www.screenskills.com](http://www.screenskills.com)

**Discover Creative Careers** - to explore creative careers, including those in video games, and to find out about online events etc, see:

<https://discovercreative.careers>

**Grads in Games** - website has career advice for graduates, information on events and job vacancies:

<https://gradsingames.com>

**Into games** - website has careers information, including job profiles on a range of games-related careers:

<https://intogames.org>

Job vacancies and internships may be found on specialist games industry recruitment sites, such as:

- <https://jobs.gamesindustry.biz>
- [www.gamesjobsdirect.com](http://www.gamesjobsdirect.com)
- [www.datascope.co.uk](http://www.datascope.co.uk)

**BAFTA Guru** - on this site, some of the most successful people in games give insights into their experiences, plus there's information on events, awards and competitions.

[www.bafta.org/guru](http://www.bafta.org/guru)

**BAFTA Young Game Designer** - this initiative is aimed at 10- to 18-year-olds and includes an annual games competition.

[www.bafta.org/ygd](http://www.bafta.org/ygd)

Other useful organisations and websites are given in other leaflets in this system (see Related Leaflets).

## Related Leaflets

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D 01 Digital careers - an introduction to the work and training

D 03 Web and app design

D 06 Software design and development

D 09 Tech and digital management

D 10 Working in esports

D 11 Creative and user-focused digital careers

E 01 Art and design - an introduction

GE 06 Sound recording

PA 01 Animation

PA 05 Special and visual effects work

PB 02 Writing for a living (includes scriptwriting)

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