



# Ultima

*A Journey To The Origins  
of Video Games*

HISTORY  
NR.2 /2021



## PREFACE

*"We dream of travels throughout the universe:  
is not the universe within us?  
We do not know the depths of our spirit.  
The mysterious path leads within.  
In us, or nowhere, lies eternity with its worlds,*

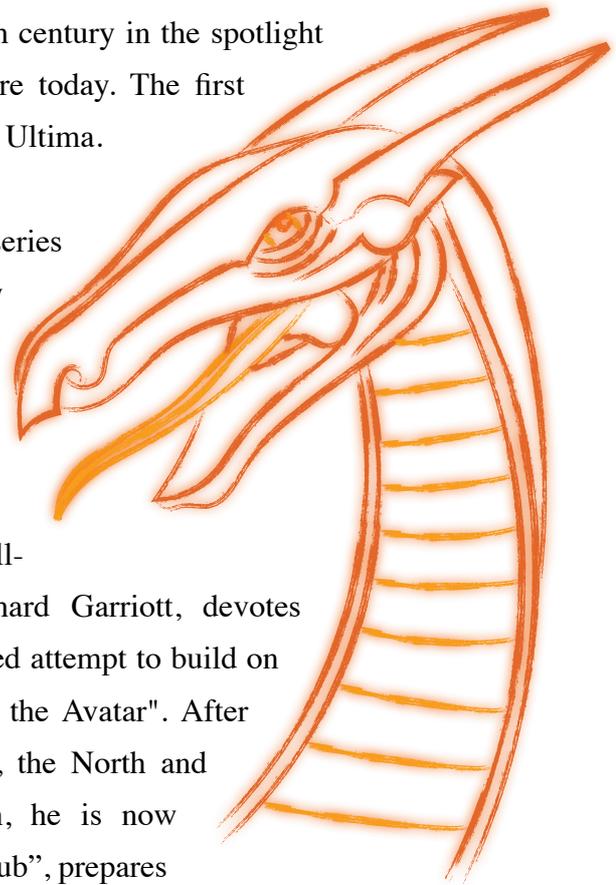
*Novalis*

The new "History" series on MEDIENISTIK puts almost forgotten products of the media history of the 20th century in the spotlight and shows their influence on our culture today. The first issue focuses on a computer game series: Ultima.

Richard Garriott's role-playing game series shows how the computer game industry emerged in the early 1980s and how basic game mechanics were developed that are still in use today.

The Ultima series has now gone into well-deserved retirement. Its founder, Richard Garriott, devotes himself to other activities - after the failed attempt to build on the success of Ultima with "Shroud of the Avatar". After visiting the International Space Station, the North and South Poles and the Mariannengraben, he is now President of the exclusive "Explorer's Club", prepares role-play evenings for his children and enjoys life as a legendary game developer.

Since it has been 40 years since the first part of the Ultima series was published, it is time for a historical review that can shed light on some interesting questions: Are computer games from the early 80s still playable today? Are there constants in the structure and development of games then and now?



This booklet contains numerous worksheets and assignments that convey basic knowledge about the beginnings of computer gaming and the principles of programming and game design.

Like the MEDIENISTIK-issue on the novel "Zero", in which German and computer science lessons are linked, this issue is a further foray into new worlds of digital teaching materials, because the history of the medium of computer games has hardly been a subject of instruction before.

In doing so, children and young people should not only learn to read texts from bygone times, they should also know the games of times gone by, especially since they imparted many skills that have now been lost. After all, which game asks you to read a book at the beginning these days, as is the case in Ultima IV?

This special issue on "Ultima" pursues four goals:

- It aims to encourage people to play an old game (Ultima IV).
- Children and young people should creatively get to know the basics of game design by drawing, programming and tinkering.
- Using the example of the Ultima series, important milestones in computer game development will be shown.
- And - last, but not least - this issue would like to make a contribution to recognizing computer games as a cultural asset.

Have fun teaching & playing



Tobias Hübner



# ULTIMA

## *A Journey To The Origins of Video Games*

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### CONTENT

02	<i>Preface</i>
04	<i>Content</i>
05	<i>The creation of Ultima</i>
07	<i>WS1: Character sheet</i>
08	<i>Ultima IV</i>
09	<i>WS2: Playing Ultima IV</i>
10	<i>WS3: Controlling Ultima IV</i>
11	<i>WS4: Drawing Pixel-Art</i>
12	<i>WS5: Drawing with vectors</i>
13	<i>WS6: Draw a monster</i>
14	<i>WS7: Program a dialog</i>
17	<i>WS8: The eight virtues</i>
18	<i>WS9: The runic alphabet</i>
19	<i>Richard Garriott – Game developer &amp; explorer</i>
20	<i>WS10: Drawing a fantasy map</i>



## ■ The creation of Ultima

*„Tolkien's work had a direct influence on the creation of Dungeons & Dragons. And D&D then again inspired the first video game designers, who wanted to recreate the D&D experience on a computer.“*  
Ernest Cline, Ready Player Two, S. 379

Many people look in awe at famous inventors or founders such as Steve Jobs, Bill Gates or Elon Musk, who change the course of the world with their ideas.

Ultima inventor Richard Garriott is also part of this illustrious circle. Many consider him not only to be the inventor of the computer role-playing game, but since "Ultima Online" he has also been the pioneer of online gaming. He was also one of the first space tourists on the International Space Station.

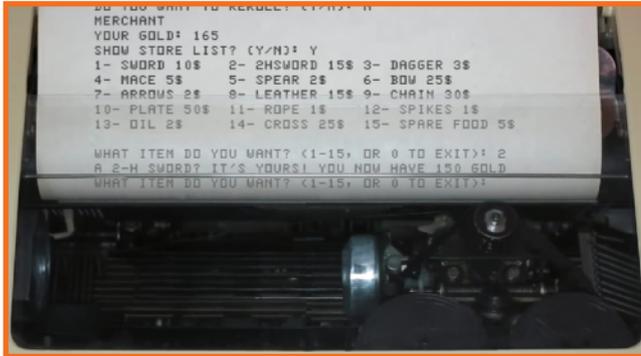
But even the greatest visionaries don't start from scratch. As early as the Middle Ages, the beautiful image of the dwarf on the shoulder of a giant was used for this circumstance.

With the Ultima game series launched by Garriott, it is also interesting to see where the idea for the game came from and how the invention of the Apple II by Steve Wozniak (who, by the way, built the breakout game machine for Atari in 1976) brought the necessary technological progress. to create such an entertainment product for the mass market.

Richard Garriott - his mother an artist, his father an astronaut - grew up, like many children of his generation, with so-called "pen and paper" role-playing games. In this type of game, a group of players sits at a table, all equipped with pencil, paper, dice and their imagination. Everyone slips into the role of a previously created character in a fantasy world, so to speak as an actor. B. a dwarf or wizard. In addition to the players, you need a



"dungeon master" for each game, a kind of director and referee who monitors compliance with the rules and drives the story forward.



At the age of 16, Richard Garriott came up with the idea of programming a digital version of "Dungeons & Dragons", not on a computer, but on a teletypewriter, a type of typewriter that sends messages over long distances received.

In 1979 Richard Garriott rewrote the game for the then newly released Apple II computer - one of the first personal computers that are still around today. Garriott made a few copies of the game, now called Akalabeth: World of Doom, and sold them at his town's computer store. Then the game became known to a major publisher and it sold so well that Richard Garriott made more money than his father, who was an astronaut at NASA, after all.

### Work suggestions

- 1 The game "Dungeons and Dragons # 1" programmed by Richard Garriott on a teletype can still be played today, so give it a try! Just go to the following page: <https://slashie.net/dndx/>
- 2 A pen and paper role-playing game begins with creating your own character. Use worksheet WS1 to come up with your own character. This will immerse you in the magic of the role-playing game.
- 3 If you want to find out more about Ultima (and understand German), you can listen to the following episode of the podcast: [www.medienistik.de/Ultima\\_Podcast.mp3](http://www.medienistik.de/Ultima_Podcast.mp3). Many thanks to Jörg Langer, who released this episode of the Spieleveteranen podcast as a free download.





## Ultima IV

The Ultima Games laid the foundation for modern computer role-playing games such as Zelda or Diablo. Nowadays, however, especially the first games in the series are difficult to play, as the structure of computer games has changed a lot over the past 40 years.

Nevertheless, even in the 21st century, it's an interesting experience to play Ultima, if only to see how much games have changed over time.

Michael Abbott, who teaches computer game history at university, thought so too. He lets his students play old games on a regular basis and since Ultima IV is considered a milestone in computer game history, he gave the assignment to play the game in his seminar and then checked how well the students got along with it. The result was sobering: For most of them, Ultima IV was simply unplayable. They didn't understand the controls, didn't know what to do, and just couldn't understand why the game was supposed to be so great.

Part of the frustration came from the fact that no one had read the manuals the instructor had sent them earlier. Nowadays, computer games are mostly self-explanatory. With Ultima, however, the manuals provide indispensable information, without which the game cannot be played properly. The complicated keyboard controls are also explained in it.

### Work suggestions

- 1 Try playing Ultima IV yourself and see how far you can get in the game. The worksheets "WS2: Playing Ultima IV" and "WS3: Controlling Ultima IV" give you important information.
- 2 Start a small class discussion: How did you like the game? How does Ultima IV differ from modern games? "TIME" has named the game one of the 100 most important games of all time - do you think this award is justified?

## WS2: Playing Ultima IV

You can play Ultima IV directly in the browser. To do this, open the page:

[https://archive.org/details/msdos\\_Ultima\\_IV\\_-\\_Quest\\_of\\_the\\_Avatar\\_1985](https://archive.org/details/msdos_Ultima_IV_-_Quest_of_the_Avatar_1985)



Start the game by pressing the "I" key, then typing in your name and choosing your gender. Then it is told how you enter the world of Britain through a "moon gate".

The game also advises you to familiarize yourself with some items: The "Book of Mystical Wisdom" ([https://archive.org/details/c64man\\_ultima4](https://archive.org/details/c64man_ultima4)) contains information about the spells and their composition, the book "The History of Britain" ([https://archive.org/details/manual\\_Ultima\\_IV](https://archive.org/details/manual_Ultima_IV)) contains a lot of background information about the game. It also mentions the map of Britain that was included in the original version of the game (along with the books and a metal ankh) in the box.

In the case of a fortune teller, the game character is then created by answering a series of questions. Depending on the answers given, the player is assigned one of eight character classes: Mage, Bard, Fighter, Druid, Tinker, Paladin, Ranger or Shepherd.

Then you can explore the game world. On the left side of the screen you can see your character, in the top right the members of your "party" and their health status (300G), including your remaining food (F: 0300) and your gold (G: 0200).



## WS3: Controlling Ultima IV

Almost all keys on the keyboard have a function in Ultima IV. The most important are:

<b>Arrow keys</b>		<i>Control of the game character</i>
<b>Space</b>		<i>Wait a turn</i>
<b>A</b>	<b>attack</b>	<i>Attack an enemy. The position of the opponent is indicated with the arrow keys.</i>
<b>D</b>	<b>descend</b>	<i>Climb down a flight of stairs</i>
<b>E</b>	<b>enter</b>	<i>Enter a city, dungeon, or shrine</i>
<b>G</b>	<b>get chest</b>	<i>Open a chest</i>
<b>H</b>	<b>hole up &amp; camp</b>	<i>Taking a break and resting restores life energy, but you can be attacked while you sleep.</i>
<b>K</b>	<b>[k]limb</b>	<i>Climb up a ladder</i>
<b>O</b>	<b>open</b>	<i>Open a door. The position of the door is indicated with the arrow keys.</i>
<b>Q</b>	<b>quit &amp; save</b>	<i>Quit the game and save</i>
<b>R</b>	<b>ready weapon</b>	<i>Choosing a weapon</i>
<b>S</b>	<b>search</b>	<i>Search the area for clues</i>
<b>T</b>	<b>Talk</b>	<p><i>Talk to another character. You have to use the arrow keys to indicate in which direction the figure you want to talk to is facing. Here are some possible words to use in conversation:</i></p> <p><i>name (asks for the name)</i>  <i>job (asks about the job)</i>  <i>join (asks if the character would like to come along)</i>  <i>give (gives the person gold)</i>  <i>health (asks about the state of health)</i>  <i>bye (ends the conversation)</i></p>
<b>U</b>	<b>use</b>	<i>Use an item found by searching</i>
<b>W</b>	<b>wear armor</b>	<i>Select protective clothing</i>
<b>Z</b>	<b>[Z]tatus</b>	<i>Show more information about the character</i>

A complete solution for the game can be found at the following address:

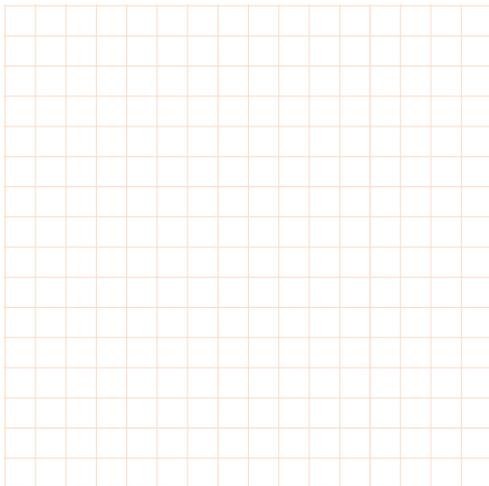
[https://wiki.ultimacodex.com/wiki/Ultima\\_IV\\_walkthrough](https://wiki.ultimacodex.com/wiki/Ultima_IV_walkthrough)

## WS4: Drawing Pixel-Art

Here you can see some characters and symbols from the first Ultima game. Each so-called "Sprite" is exactly 16x16 pixels. The entire game graphics of the first Ultima parts are composed of such "tiles".

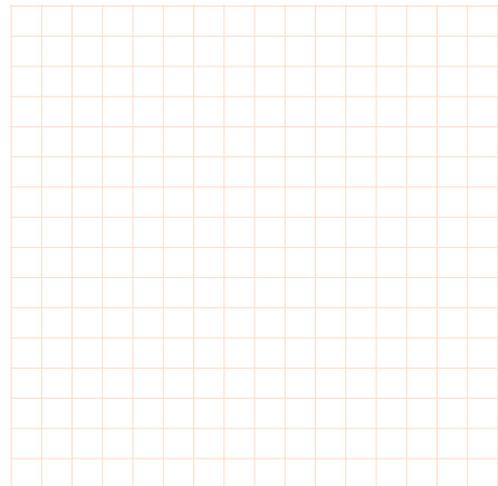


Source: [https://wiki.ultimacodex.com/wiki/Ultima\\_V\\_internal\\_formats](https://wiki.ultimacodex.com/wiki/Ultima_V_internal_formats)



*A monster named:*

---



*A monster named:*

---

### Work suggestions

- 1 Create your own pixel monsters using the two drawing fields above. Then give the creatures suitable names. If you prefer to draw digitally, use the app <https://www.piskelapp.com> On this page you can also create a small animation from two or more images.
- 2 Find out more about the programming of tile-based games and the limitations of 8-bit computers by watching the lecture "Game Development in Eight Bits": <https://www.youtube.com/watch?v=TPbroUDHG0s>

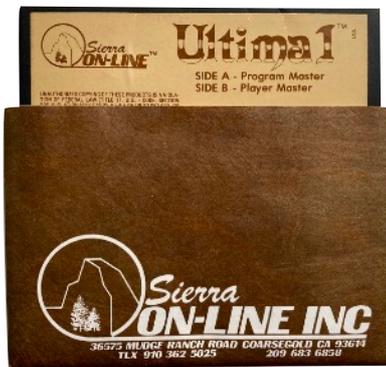
## WS5: Drawing with vectors

On the computer, images can not only be saved pixel by pixel, but even more space-saving with the help of vectors. Ken Williams describes how this works in his book "Not All Fairy Tales Have Happy Endings: The rise and fall of Sierra On-Line". The picture on the right of a house with which his wife Roberta Williams' first game called "Mystery House" began, was around 150 bytes in size. More detailed images required a

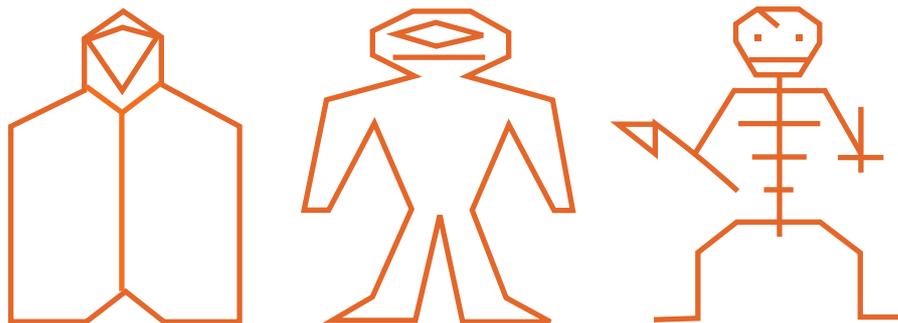


Source: [https://commons.wikimedia.org/wiki/File:Mystery\\_House\\_-\\_Apple\\_II\\_-\\_2.png](https://commons.wikimedia.org/wiki/File:Mystery_House_-_Apple_II_-_2.png)

little more space, but even if images were larger than 200 bytes, 70 images would only take up around 14,000 bytes, or a fifth of a floppy disk, the storage medium commonly used at the time.

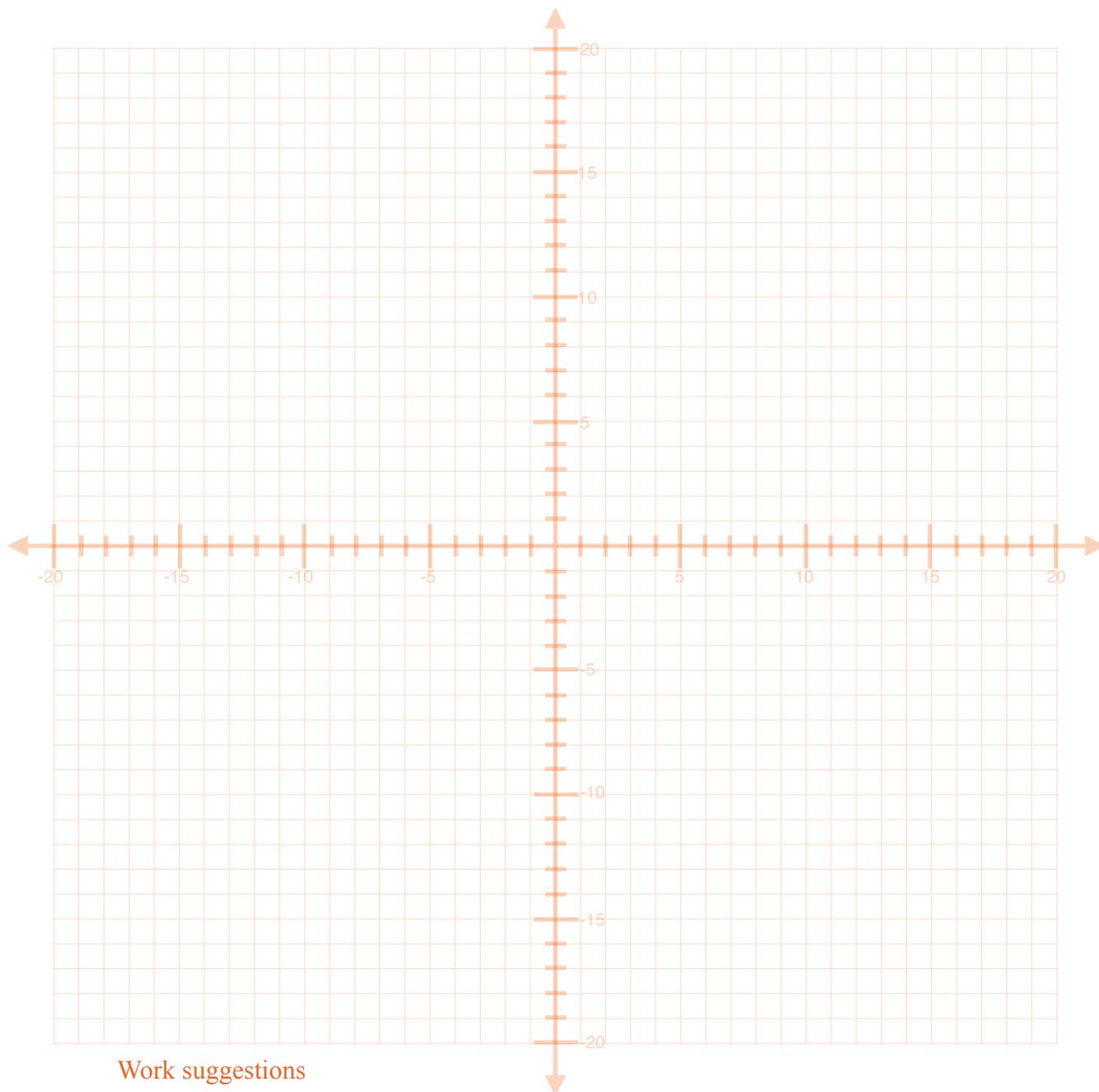


Ultima also used vector graphics to show the 3D view in the dungeons and the monsters that were there. Here are a few of these creatures:





## WS6: Draw a monster



- 1 Now draw a vector image of a monster yourself. Use the coordinate system for this.
- 2 Now try to paint the monster with a "Python Turtle". Visit the Page <http://www.pythonsandbox.com/turtle> and think about how you have to control the turtle to recreate your picture. The command `t.forward (100)` moves the turtle 100 pixels forward, `t.right (90)` lets it rotate 90 degrees to the right. Further commands are: `t.left (100)`, `t.backward (100)` and `t.circle (50)`. With `t.setpos (-100,100)` you can place the turtle anywhere. If you don't want her to draw a line, first write `t.up ()` to hold the pen and then `t.down ()` to put it down.



## WS7: Program a dialog

A special feature of Ultima are the conversations that run like a kind of chat program. You type in a word or phrase and then get an answer. This creates the illusion of talking to a real person to whom you can basically say anything you want. In reality, however, the character reacts to very few words. These so-called “keywords” in Ultima are for example “name”, “job”, “bye” and the names of the virtues such as “sacrifice” or “honesty”.

In the following, the aim is to write such a chat program yourself, using the programming language "Python 3", which runs on all computers. Versions for all operating systems can be found at [www.python.org](http://www.python.org). If you are using a Raspberry Pi, Python3 is already preinstalled.

In addition, you need an editor with which you can write the program. On the Raspberry Pi these are, for example, the programs "IDLE3" or "Thonny". To start on the Raspberry Pi, select the Development folder in the start menu at the top left and start the Python 3 (IDLE) program.

Then choose New File in the File menu. Now you can start to write your chat program. Start by thinking about the keywords and a few synonyms or words that you want the program to respond to. For example, if you ask for the name, you can define the word “name” as a keyword so that the program can respond to the sentence “What's your name”. Incidentally, the entries must not have a punctuation mark at the end, as this would prevent the keyword from being recognized correctly.

Write down these words in what is known as a "tuple". A tuple is a collection of data, in this case words. Each of these tuples needs a name that you write at the beginning. This is followed by an equal sign and all key words are enclosed in brackets, enclosed in quotation marks and separated by a comma. So the result could look something like this:

```
name = ("name", "called")
job = ("job", "profession", "working")
bye = ("bye", „see you“, „goodbye“)
```

All words must be written in lower case, as we will later convert what the player entered to lower case as well. So it makes no difference whether someone writes “Name” or “name”. Then we define a function that will become our main program. We give this function the name "start".



```
def start():
```

Next, the player should make an input. Make sure that it is indented. So press the TAB key once (on the keyboard this is usually to the left of the letter “Q”.) In the Ultima games, the screen says “Your Interest” when the player is supposed to make an entry.

```
    user_input = input(„Your Interest“).lower()
```

The input is saved in the variable "user-input" in lower case letters. The “.lower ()” command at the end of the line takes care of this.

Now follows a loop in which the input is split up into individual words and compared with the content of the tuples. To do this, we start a loop with the command:

```
    while True:
```

Various queries are then made one after the other, in which the entries are searched for the keywords. Here is an example:

```
        if any(i in name for i in user_input.split()):
            print(„My name is Tim.“)
            start()
```

If one of the key words is recognized in the tuple “name”, the sentence “My name is Tim.” is the output. The function is then started again. Again, it is important to pay attention to the indentations. The first line is simply indented compared to the beginning of the loop, the “print” output and the restart of the loop are double indented compared to the line “while True:”.

Now this code is repeated for all other key words, whereby a different answer must of course also be entered. The result could look like this:

```
        if any(i in job for i in user_input.split()):
            print(„I am a Blacksmith.“)
            start()
```

Of course, any number of additional keywords can be added here, which are inserted according to the same scheme. When the key word is entered to end the conversation, the program shall be terminated. To do this, enter the following code:

```
        if any(i in bye for i in user_input.split()):
            print("Bis später!")
            exit()
```



Of course, it can also happen that the player enters a text that does not contain any of the previously defined keywords. This case should also be taken into account with the following program code:

```
else:
    print("Ich verstehe dich leider nicht.")
    start()
```

Our function is now complete and the program can be started. This is done by entering the following line:

```
start()
```

The finished program looks like this:

```
name = ("name", "called")
job = ("job", "profession", "working")
bye = ("bye", „see you“, „goodbye“)
def start():
    user_input = input(„Your Interest: “).lower()
    while True:
        if any(i in name for i in user_input.split()):
            print(„My name is Tim.“)
            start()
        if any(i in job for i in user_input.split()):
            print(„I am a blacksmith.“)
            start()
        if any(i in bye for i in user_input.split()):
            print(„See you later!“)
            exit()
        else:
            print(„I don’t understand you.“)
            start()
start()
```

Work suggestion:

- 1 Expand your program by letting it react to inappropriate inputs (swear words) or add additional keywords. You can download the code here:  
[www.medienistik.de/Ultima.py](http://www.medienistik.de/Ultima.py)

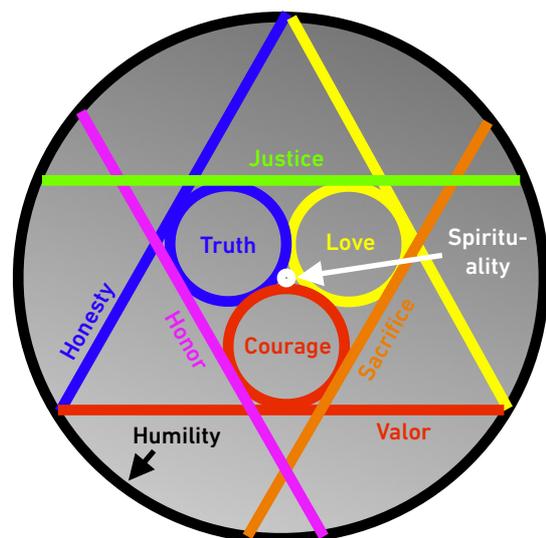
## WS8: The eight virtues



Even in ancient times, people thought about what constitutes a good and happy life. The answer was: live a virtuous life. But what exactly are the virtues that a person should have? Ultima inventor Richard Garriott also asked himself this question and, following extensive research, together with the writer Roe R. Adams

III, he designed his own system of all virtues relevant to him. At the center of this system are the three basic principles of love, truth and courage. If these basic principles are lived in their entirety, the three virtues of compassion as pure love, honesty as pure truth and valor as pure courage result. If, on the other hand, you combine two of the basic principles, the result is: justice as a combination of truth and love, sacrifice as a combination of love and courage and honor as a combination of truth and courage. If all three principles combine with each other, this results in spirituality, the absence of all three basic principles results in humility.

Garriott reports that he got the idea for this system when he saw a documentary about Hinduism, but the 16 virtues presented there were too much for a video game, which is why he simplified the system and came up with the codex symbol, which you can see on the right side.



### Work suggestions:

- 1 Build your own “Ultima Flexahedron”. You can find video instructions here: <https://www.youtube.com/watch?v=f4d-a5EVp-0>. The template can be downloaded here: [http://www.medienistik.de/Ultima\\_Flexahedron.pdf](http://www.medienistik.de/Ultima_Flexahedron.pdf).

## WS9: The runic alphabet



Source: Twitter (@GallaraDragon)

Just like his role model Tolkien, who revolutionized the fantasy genre with the Lord of the Rings trilogy, Ultima creator Richard Garriott attached great importance to making his fictional worlds particularly believable. This also included the invention of their own languages. There are several of these languages in Ultima. In Ultima VI the Gargoyles speak their own language and in Ultima Underworld you have to learn the lizard language.

A runic alphabet also appears in almost all Ultima games. In Ultima IV, for example, the shrines of the eight virtues are labeled with this runic alphabet. A

translation table was also included with the game.

A	B	C	D	E	F	G	H	I	J	K	L
Ɔ	Ɔ	Ɔ	∞	M	Ɔ	X	Ɔ		∞	Ɔ	Ɔ
M	N	O	P	Q	R	S	T	U	V	W	X
∞	Ɔ	Ɔ	K	Ɔ	R	Ɔ	↑	∞	∞	N	Ɔ
Y	Z	TH	EE	NG	EA	ST					
∞	Ɔ	Ɔ	∞	∞	Ɔ	∞					

Source: [https://wiki.ultimacodex.com/wiki/Runic\\_alphabet](https://wiki.ultimacodex.com/wiki/Runic_alphabet)

Work suggestions:

- 1 Encrypt a short message with the help of the runic alphabet and let someone decipher it.
- 2 In the MEDIENISTIK booklet for the novel "Zero" you will find further (and much more secure) ways of encrypting a text on pp. 38-40. You can download the booklet here: [http://www.medienistik.de/Themenheft\\_Zero.pdf](http://www.medienistik.de/Themenheft_Zero.pdf).

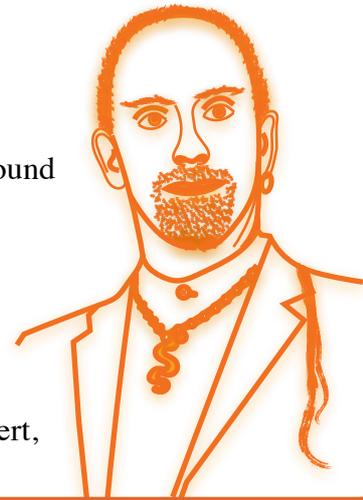
## Richard Garriott – Game Developer & Explorer

The story of Ultima is also a family story centered around Richard Garriott, the programmer of the first Ultima games. Even as a teenager, he earned more than his father thanks to Akalabeth (the previous game of Ultima) - and he was an astronaut at NASA, after all. On March 4, 1983 Richard founded Origin Systems Inc. with his brother Robert, father Owen and Chuck Bueche in Houston, Texas. The name comes from the "Origins Game Fair", a fair for role-playing games. The first employee was Denis Loubet, who drew the covers for almost all Ultima parts.

Five years later, Origin had almost 50 employees, and in 1992, after the takeover by Electronic Arts, over 300 people were already working in the games factory. However, this takeover also heralded the end of Origin, because the deadlines forced by EA in particular led to premature releases that damaged the company's previously excellent reputation.

A tenth part based on the Unreal engine was planned under the title "Ultima X - Odyssey", but was never completed.

Today Garriott no longer creates virtual worlds, but explores the real one. He flew to the International Space Station, was at the North and South Poles and the lowest point on earth.



1981 Ultima I	For Ultima I, Richard Garriott took a lot of code from Akalabeth and improved it. It was the first commercial game whose graphics were made up of tiles.	
1982 Ultima II	Ultima II was developed as quickly as possible to meet the deadline. The result was an unfinished and bugged game.	
1983 Ultima III	Ultima III offers numerous improvements over its predecessors, such as a party and a combat system.	
1985 Ultima IV	After two years of development, a highlight of the series appears with Ultima IV. It introduces the eight virtues into the Ultima world: honesty, compassion, valor, justice, sacrifice, honor, spirituality and humility.	
1988 Ultima V	Ultima V offers a larger game world with more cities and dungeons. Dialogues with NPCs offer more options and interactivity with the game world has been increased.	
1990 Ultima VI	Ultima VI could be played with the mouse for the first time thanks to the use of icons. As a result, the production costs exceeded the 2 million mark. Up until then, no computer game had cost even half as much.	
1992 Ultima VII: The Black Gate	For many fans, Ultima VII is the best part of the series. The plot comes from the pen of the later James Bond author Raymond Benson.	
1993 Ultima VII: The Serpent Isle	The Serpent Isle is the first Ultima released under the leadership of Electronic Arts. Origin immediately made itself unpopular because the development was delayed and the Christmas business was missed.	
1994 Ultima VIII: Pagan	Origin suffered more and more under the strict management of Electronic Arts and so Ultima VIII was thrown onto the market unfinished - recognizable among other things, on the fabric card that has nothing to do with the actual game world.	
1999 Ultima IX: Ascension	Since many members of the development team were hired to work on Ultima Online, many elements of the game could not be implemented as planned; the result was graphically impressive for the time, but disappointed in both the gameplay and the story.	

## WS10: Create a Fantasy Map

„I wisely started with a map  
and made the story fit,“  
J.R.R. Tolkien

A special feature of the Ultima games was the fabric map contained in the packaging, through which one got the feeling of traveling a "real" world. Many fantasy games and novels use such a map to provide orientation and curiosity through interesting places to wake up.

The book "The writer's map" by Huw Lewis-Jones describes the fascination of maps as follows on the back of the cover:

*Maps are thrilling, full of wonder and magic. Maps promise thrilling adventure and excitement like a good story. Robert Levis Stevenson invented a card to make a child dream. The idea for Treasure Island was born. Writers love maps.*

Now you should create the map of your own fantasy realm yourself. Of course, this works in the classic way with pen and paper. However, you can also use a digital tool, because there are extra programs that help you to create your own fantasy map and are very easy to use.

Here are some of these digital tools for drawing your own maps:

- The "[Fantasy Map Generator](#)" page offers a very simple introduction to drawing maps on the computer. It creates its own map as soon as it is called up, which can then be adapted and labeled with various options.
- The "[Medieval Fantasy City Generator](#)" is also very easy to use. It doesn't create a whole map, just a single city.
- "[Incarnate](#)" is much more extensive and only free in the basic version. With this tool you also have to create an account in order to be able to create a map.

Work suggestion:

- 1 Create a map to match the fantasy character you have created (WS1). Think about which interesting places your character could travel to, where his race (dwarf, elf, etc.) is at home, which areas belong to the enemy and so on. Use the website [www.inkarnate.com](http://www.inkarnate.com).

### Map drawing tips:

- Rain falls in the mountains and forms rivers that then flow into the sea.
- Rivers get wider when they converge.
- Rivers unite, they don't split.
- Big cities are mostly on rivers.

