

# STAR WARS L'EXPO (STAR WARS: THE EXHIBITION)

Behind the scenes of George Lucas's  
world famous cinema saga  
18 October 2005 to 27 August 2006

With *STAR WARS L'EXPO*, presented from 18 October 2005 to 27 August 2006, the Cité des Sciences reveals some of the secrets behind the creation of this legendary saga. Almost 150 original objects and some 100 drawings, models, sets and costumes, all used in making the films, punctuate an exhibition that re-creates the atmosphere of twelve of the planets on which the saga takes place. Highlighting key contributions the *Star Wars* films have made in the field of visual effects, the exhibition explains the techniques used in creating a set, shooting a fight scene, or designing a creature. And, on each planet during their journey, visitors will find "science questions" that shed light on physics, robotics, planetology, and the biology of creatures inhabiting this mysterious galaxy.

Covering some 1,500 square metres, the exhibition retraces the story of *Star Wars*, tracking the compromised destiny of **Anakin Skywalker** against the backdrop of the struggle between the forces of good, the Jedi and the forces of evil, the Sith. Designed by the Cité des Sciences and using archival items from the Lucasfilm Ltd. collection, the exhibition offers three different gateways into the fascinating universe of *Star Wars*.

## Original objects

Visitors are immediately immersed in the saga, with original costumes worn by **Darth Vader**, **Padmé**, **Yoda**, **Chewbacca** and other key characters along with scale models of the sets and spaceships, including a full-sized **Naboo N-1 starfighter** (10 metres in length) and **Anakin's Podracer**, and detailed drawings and sketches. An integral part of the *Star Wars* myth, these objects illustrate the various stages involved in constructing the films. They are grouped together thematically in rooms that evoke the saga's legendary planets. At the entrance to each room, huge landscape images are projected to recreate the atmosphere of a particular planet, while inside the room extracts from the film soundtracks duplicate the specific context of each object.

### **Thirty years of visual effects**

Secondly, the exhibition reveals how far cinema techniques have developed over the last 30 years. Optical illusions, picture overlays, pyrotechnics, fight scene tricks and other visual and special effects are explained in video sequences that reveal the massive contribution made in this field by *Star Wars*. Back in 1976, when shooting the first film in the saga (*Star Wars: Episode IV A New Hope*), George Lucas was faced with a lack of resources, so he set up his own visual effects company, Industrial Light & Magic (ILM). Since then, from the THX sound system to the use of digital technologies, *Star Wars* has made an incomparable contribution to visual effects.

### **Gateway to science**

The mysterious universe of *Star Wars*, a vast galaxy with numerous planetary systems, raises many purely scientific questions. The story features enigmatic planets, highly sophisticated technologies, and countless mutant creatures with extraordinary characteristics. Roland Lehoucq, an astrophysicist with the French Atomic Energy Commission (CEA) in Saclay, has long been fascinated by the saga. In the exhibition, he compares the worlds of *Star Wars*, planet by planet, with the current viewpoint of scientific research. Presented in the form of sound commentaries with information panels, these “**science questions**” explain, often in a humorous way, the physical phenomena and references to planetology and exobiology (the study of the and development of life on other planets) contained in the *Star Wars* saga.

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### **STAR WARS:THE EXHIBITION**

18 October 2005 to 27 August 2006

Exhibition presented in French, English, and Spanish

Fully accessible to wheelchair users

Cité des Sciences et de l'Industrie

30 Avenue Corentin Cariou

75019 Paris - France

Opening hours : Wednesday to Friday 10am to 6pm, Sunday 10am to 7pm, closed Monday

Exceptional openings on Mondays : October 31 and December 26, 2005

Late-night opening from 6pm to 9pm : October 21 and 22, then each Tuesday and Saturday.

During school vacations, late-night openings from 6pm to 9pm will take place each day except on Sundays

Information

Internet: [www.cite-sciences.fr](http://www.cite-sciences.fr)

Tel.: 01 40 05 80 00 (voice server)

Ticket prices

Reservation recommended

Standard admission: 10.50 €

Concessions: 8.50 €

Tickets also cover the permanent exhibitions

## La Cité des sciences et de l'industrie presents **STAR WARS: THE EXHIBITION**

The *Star Wars* adventure spans a period of about thirty years. Three decades during which the adventures in this galactic opera told against the backdrop of the fight between good and evil, the story of the **Skywalker** family, has enthralled millions of viewers the world over.

Freely inspired by fairytales, ancient mythology, the history of Ancient Rome, and contemporary scientific and technological progress, the *Star Wars* story is the child of its creator, George Lucas, a visionary who has pushed back all of the limits of his trade and who, like Steven Spielberg or Francis Ford Coppola, has contributed to rejuvenating American cinema.

With **STAR WARS: THE EXHIBITION**, la Cité des sciences et de l'industrie invites the visitor to journey behind the scenes of this globally successful cinematographic saga.

As they journey through the 1500 m<sup>2</sup> of the exhibition, the visitors discover nearly 150 original objects and over one hundred drawings, models, items from scenes and costumes that were actually used in making the films. They are grouped together by theme in rooms that reproduce the visual and sound atmospheres of the most emblematic of the *Star Wars* planets: Tatooine and Naboo, not forgetting the terrifying Death Star...

On each planet, highlighting the role of *Star Wars* in the development of visual effects, excerpts from the films and explanations make it possible to understand the various technical processes that were used to shoot the sequences, and to make the creatures (**Yoda, Chewbacca...**) and the numerous sets.

A vast galaxy with a multitude of planetary systems, the universe described by **Star Wars** raises scientific questions. All through the visit, “ **the science questions** ” compare the fiction with the state of scientific knowledge so as to propose enlightened looks at physics, robotics, planetology, or indeed the biology of the creatures of the saga.

To take the visitor further in discovering the various themes of the exhibition, la Cité des Sciences proposes a diversified program:

- **Exhibit facilitating schemes**

An exhibit-facilitating program accompanies the exhibition. A visit with a commentary and workshops helps visitors discover scientific phenomena through the cinematographic work of George Lucas.

- **Internet site**

The web site of la Cité proposes a range of ideas for going further in discovering the themes proposed by the exhibition.

- **Lectures, debates, symposia**

Alongside **STAR WARS: THE EXHIBITION**, la Cité proposes, from February to March 2006, a lecture cycle that will study the links between science and science fiction.

- **Film screenings at la Cité de sciences et de l'industrie**

Intergalactic empires, bellicose extraterrestrials, and space battles on the big screen. At the end of the year, La Cité will propose a selection of works to be seen or seen again, echoing the universe of *Star Wars*, either because they inspired the work of George Lucas, or because they are heirs of that work.

**- Documentary resources**

The media library proposes a catalogue of multiple references on various themes in relation with the exhibition: astrophysics, robotics, visual effects, and cinematographic technologies, not forgetting science fiction and a selection of works devoted to *Star Wars*.

**- Publications**

A publication accompanies the exhibition : a work by Roland Lehoucq entitled **“Faire de la science avec Star Wars” (“Science with Star Wars”)** in the “Le Collège de la Cité” collection, co-published by la Cité des Sciences et de l'Industrie and les éditions Le Pommier with the cooperation of LucasBooks.

## Visiting the exhibition

As soon as they enter the exhibition, visitors are plunged into the universe of *Star Wars*, a mixture of eternal mythologies, fantastic creatures, and futuristic societies in which scientific progress is omnipresent. The walls that delimit the 1500 m<sup>2</sup> of exhibition are adorned with the portraits of the main characters of the saga. On the entrance façade, a display window reveals two intriguing racing vehicles, the Podracers used in the Boonta Eve Classic of Episode I *The Phantom Menace*.

Then the immersion into the fantastic universe of *Star Wars* begins with, in particular, suspended over the entrance, the impressive full-scale model of the **Naboo N-1 starfighter**. **R2-D2**, an emblematic character of *Star Wars*, is installed with his sidekick **C-3PO** a little ways away, on the great vista from which the other rooms of the exhibition lead off. This long corridor that leads to the Death Star is brought to life by vast projections of the landscapes and by the sound ambiances of the various planets.

Following the chronological order of the story, the visit begins. It takes visitors from planet to planet. Each of the nine rooms of the exhibition is dedicated to presenting one or more planets, and proposes three distinct entrances :

- **the original objects** : costumes, items of scenery or of architecture, and drawings... plunge the visitor into the atmospheres of the saga
- **thirty years of progress in visual effects** shows the immense contribution from *Star Wars* to this field: the cinematographic techniques or processes used during the shooting are decrypted, while an excerpt from the film makes it possible to appreciate the result of them
- **explanations on physics, planetology, and exobiology** are given with humour by Roland Lehoucq, an astrophysicist at the French atomic energy research centre, “le Commissariat à l’Energie Atomique” (CEA) in Saclay, who compares the universe of the saga with scientific reasoning and with the current state of knowledge.

## Room 1

### Tatooine

Position : Outer Rim of the Galaxy

Climate : arid, temperatures of up to 65°C

Environment : deserts

Population : Humans, Jawas, and Tusken Raiders (or Sand People)

The first room is given over to presenting the parched planet of Tatooine. This planet, with its twin suns, was where the young **Anakin Skywalker** grew up. The visitor discovers the city of Mos Espa where, every year, the Boonta Eve Classic races takes place. Two showcases are entirely dedicated to elements used in the Podracer sequences. This passage from Episode I is also used to explain the make-up techniques used for the characters. The mode of propulsion of the landspeeders, which are vehicles that appear to hover over the ground, and the concept of hyperspace will no longer hold any secrets for visitors by the time they leave this room.

## Room 2

### Naboo

Position : Mid Rim of the Galaxy

Climate : temperate

Environment : green plains, hills and lakes

Population : Humans, the Naboo and Gungans

The next stage takes visitors to a second room which is dedicated to Naboo - a surprising planet on which two worlds live together, namely an air world and an amphibian world. After observing the models of the city of Theed, the visitor discovers the costumes and the objects used by the Queen of Naboo, **Padmé Amidala**. Another showcase is devoted to the Gungans and to their intriguing under-sea world. Could there be cities under the sea ? How does the mysterious shield that protects the Gungans work ? Their most famous representative, **Jar Jar Binks**, reveals the secrets of how it is made.

## Room 3

### Coruscant

Position : Centre of the Galaxy, Coruscant is also known as the "Jewel of the Core Worlds"

Climate : temperate and controlled

Environment : city planet covered with skyscrapers

Population : Humans and aliens

Another room and the visitor lands on Coruscant. It was to the Galactic Senate of the Republic, in spite of the danger and under the protection of the Jedi, that **Padmé Amidala** came to warn the Republic. The Trade Federation had mobilised a vast droid army that had occupied Naboo. A city planet with high-rise buildings reaching dizzying

heights and where airspeeders fly in an unceasing ballet, Coruscant is also home to the Jedi Temple. This logically leads us to wonder about their most remarkable tool : the lightsaber. An interactive entitled **“The Lost Lightsabers of the Jedi and Sith”** proposes to take the visitor closer to this mythical implement. Five lightsabers in operation are installed above five screens. By moving the hand closer to each lightsaber, the visitor triggers a film excerpt corresponding to the fight during which the lightsaber in question was lost.

## Kamino

Position : Outer Rim  
Climate : temperate and controlled  
Environment : oceans  
Population : Kaminoans

In this room, the visitor discovers Kamino, an ocean planet on which elegant creatures work relentlessly to create the Clone Army. It is an opportunity to explain reproductive cloning which is now a reality. Studying Kamino makes it also possible to broach concepts of planetology. Can a planet covered with water exist ? Lastly visual effects used for the multiplication of the clones are examined.

## Room 4 Geonosis

Position : Outer Rim  
Climate : harsh, wide temperature differences  
Environment : rocky deserts  
Population : Geonosians

The battle between the defenders of the Republic and the Separatist forces is raging on Geonosis. In this room, the visitor can experience the peculiar climate of this desert planet surrounded by an asteroid belt. Showcases reveal characters and items of scenery where spectacular and decisive combats took place. It is also an opportunity to understand how the battle scenes involving real characters and 3D creatures were recorded.

## Kashyyyk

Position : Mid Rim  
Climate : tropical  
Environment : forests and jungles  
Population : Wookiees

The visitor approaches another planet. Located in the Mid Rim of the Galaxy, Kashyyyk is covered with forests and jungles. Gigantic trees, the Wroshyrs, serve as supports for the architecture of the inhabitants of this planet, the Wookiees, whose most famous representative **Chewbacca** is the faithful right-hand man of **Han Solo**. After observing how the costumes of these strange primates were made, the visitor can, meditate on the missing link between humans and apes.

## Utapau

Position : Outer Rim  
Climate : dry  
Environment : rocky plains, deep sinkholes  
Population : Utai and Pau'ans

The action now takes us to Utapau, a planet more remote from the centre of the Galaxy than the preceding one. Models present the elements of architecture of this strange planet which is covered with deep sinkholes where life has managed to develop, and they make it easier to understand how the scenes, blending real scenery and digital images, were created.

## Room 5 Mustafar

Position : Outer Rim  
Climate : very high temperature  
Environment : volcanic  
Population : lava fleas, Mustafarians

The next room is dedicated to the planet Mustafar, which plays a very important part in the plot of *Star Wars*. A volcanic planet, everything about it is hell-like, and it thus logically serves as the setting for the final fall of **Anakin**. Here, visitors find out how such a setting was made and can observe the costume worn by the anti-hero at this crucial moment of the tale. They then find themselves faced with an important decision: they are asked to make a choice between two routes, one leading to good, and the other to the dark side of the Force.

## Room 6 The Death Star

Position : variable  
Climate : artificial and controlled  
Environment : immense space station, huge destructive capacity  
Population : humanoids and clones

Depending on the choice they make, visitors see the rest of the exhibition in a different order. If they opt for the dark side, the next stage takes them to the Death Star. Listening to the symphonic music that accompanies the appearances of **Emperor Palpatine**, the visitor discovers a first showcase containing various objects, models, and drawings related to this supreme weapon of the Empire. A second showcase is entirely given over to the character **Darth Vader**. An excerpt from the film showing a scene in which he is fighting a lightsaber duel with his own son, **Luke**. His costume, and drawings, accompanied by his famous mechanical breathing, complete the immersion of the visitor into the dark and evil world of this faithful servant of the Galactic Empire. The science question focuses on the size and the power of this impressive weapon of destruction.

## Room 7

### Hoth

Position : Outer Rim  
Climate : glacial  
Environment : snow and ice  
Population : wampas and tauntauns

The visitor arrives in a new room dedicated to Hoth, a planet whose climate is particularly hostile. Entirely covered with ice and snow, it is the lair of carnivorous predators known as **wampas**. Two showcases show Rebel objects, several of which are closely related to the scene of the film in which **Luke** is being attacked by one of these ferocious ice creatures. From study of an elephant at the San Francisco Zoo to the making of articulated models, all of the stages necessary to developing the mode of locomotion of the **tauntauns**, snow lizards serving as ice steeds are explained.

### Dagobah

Position : Outer Rim  
Climate : humid  
Environment : swamp  
Population : miscellaneous creature, Yoda

For those visitors who choose the good side of the Force, a long corridor with soft lighting leads them directly into a room devoted to Dagobah. While background sound reproduces the atmosphere of this swampy planet where Jedi Master **Yoda** trains the young **Luke Skywalker**, visitors are invited to exercise their levitation force. By positioning their hand on a sensor, visitors must, like a Jedi, concentrate sufficiently to enable a miniature reproduction of **Luke's X-wing** to rise out of the swamp in which it is ensnared. Visitors also discover the considerable amount of work that was needed to shoot the scenes of Episode V in which the character of **Yoda** came into play for the first time. For all of these scenes, it was necessary to build a set that was raised by 2 metres so as to hide the puppeteers underground.

## Room 8

### Tatooine

Position : Outer Rim  
Climate : arid  
Environment : deserts  
Population : Humans, Jawas, and Tusken Raiders (or Sand People)

Crossing the corridor of the Death Star for the last time, the visitor finds **Leia** and **Luke** in a second room devoted to the planet Tatooine. They have come to free their friend **Han Solo**, who is being held prisoner by **Jabba the Hutt**, an infamous gangster who reigns supreme over this planet. The secrets of manufacturing and manipulating this repulsive slug and another monster, the **rancor**, will be sure to interest the visitor who can

then observe objects, creatures, and costumes used to shoot the scenes situated in **Jabba's** evil lair. Accompanying the heroes in their odyssey, visitors find themselves on board **Jabba's** sail barge. It overlooks the impressive Great Pit of **Carkoon** which is supposed to digest its victims for at least a thousand years.

## Room 9

### Moon of Endor

Position : Outer Rim

Climate : temperate

Environment : forests

Population : Ewoks

The Rebel forces are preparing for the final battle. Before they can attack the second Death Star, they must first destroy the generator that generates its protective force field. The generator is installed on the forest-covered Moon of Endor, to which this last room of the exhibition is devoted. A vast projection of the forests that maintains this planet sets the scene for the life of the **Ewoks**, who are like miniature bears gifted with intelligence and who are to help the heroes in their decisive fight for freedom and democracy. Several showcases are dedicated to the last adventures of the tale, such as the speeder bike chase between the soldiers of the Empire and **Luke** and **Leia**, and the final encounter between father and son. In a final burst of redemption, **Darth Vader** sacrifices himself and throws his Master into the void to save his son from the killer bolts of Force lightning fired at him by **Emperor Palpatine**. A showing on the big screen of the end of Episode VI: *Return of the Jedi*, marks the end of the visit. All of the planets of the galaxy celebrate in unison the new-found peace, while a fleeting vision shows that **Anakin Skywalker** has finally joined the pantheon of the Jedi Knights.

It is time for visitors to experiment with a process that is particularly useful to filmmakers : compositing. This technique, which has already been observed during the visit, makes it possible to place objects or characters in a virtual universe. The subject is firstly recorded against a blue background, and the background landscape, i.e. a setting from the *Star Wars* saga here, is then dropped in.

## Star Wars, thirty years of progress in visual effects

Between the first chapter in the *Star Wars* saga, Episode IV : *A New Hope*, in 1977, and the release in 2005 of Episode III : *Revenge of the Sith*, nearly thirty years have gone by. Three decades during which visual effects have, thanks in large part to the experimenting and experience of *Star Wars*, enjoyed spectacular progress.

When, in 1975, Georges Lucas began preparing for shooting the first part of his galactic opera, no film studio had an integrated department specialised in visual effects. He therefore had to innovate. For the needs of the film, he set up his own visual effects company, Industrial Light & Magic (ILM).

He wanted the air combat scenes of his film to be as realistic as those of World War II, and so he recruited John Dykstra who had already supervised images of this type for a film entitled *Silent Running*. With a team of young craftspeople, he began developing techniques that would make it possible to achieve the realistic scenes desired by Lucas.

Conventional frame-by-frame animation techniques raised an essential problem, namely that the resulting movement of creatures, starships and vehicles was jerky and unnatural. To mitigate this problem, Dykstra developed the first computer-driven motion-control camera. Known as the Dykstraflex, this tool made it possible to shoot dynamic frame-by-frame sequences.

The success that greeted the release of *Star Wars* merely confirmed Lucas's decision to be independent from big Hollywood studios. With the profits he made from this film and its sequel, he set up Skywalker Ranch which was equipped with post production facilities and which operated in parallel with ILM. And so it was that in 1983, ILM produced for Episode VI : *Return of the Jedi*, the most complex optical compositing ever achieved up to that time.

Lucasfilm innovations reached all fields, from its THX standards in sound to the digital techniques. The use of computer graphics propelled ILM to the very forefront of expertise in visual effects. The digital camera made a considerable savings of time possible. There was no longer any need to develop film, and frames could be modified and edited immediately. This process offered unprecedented flexibility in constructing shots. Characters, lights, and settings could be touched up at will. Released in 2002, Episode II: *Attack of the Clones*, was shot entirely in digital format and was a first in cinematic history.

## **Star Wars: gateway to sciences**

Although the plot of *Star Wars* takes place a long time ago in a far away galaxy, the worlds it describes are an intriguing mixture of strange creatures, of bygone civilisations and of futuristic technologies. Young and old alike have been enthralled by the magic of the saga and scientists have also become passionate enthusiasts. One of them, Roland Lehoucq, an astrophysicist at France's Atomic Energy Research Centre, the "Commissariat à l'énergie atomique" (CEA), has agreed to share his enthusiasm for the saga, and gives us thoughts about the planets, their inhabitants, and the technological world that surrounds them. Presented in the form of sound commentary and of illustrated text boards, the "**science questions**" follow the chronological order of the tale, and give, sometimes humorously, enlightened explanations on fields such as physics, planetology, and exobiology...

### **Tatooine**

How can landspeeders hover over the ground ?  
Starships and the concept of hyperspace.  
The twin suns of Tatooine, a reality ?

### **Naboo**

The undersea city of the Gungans.  
What is the geographical structure of this planet ?

### **Coruscant**

The lightsaber and its mode of operation.  
The Jedi library, or how to fit the whole of intergalactic culture into a single set of shelves ?

### **Kamino**

Ocean planets: true or false ?  
Is mass human cloning possible ?

### **The Death Star**

What energy does it need, and where does it get the energy from ?  
How can its size be calculated ?

### **Mustafar**

A volcanic planet.  
The example of Io and of its volcanoes.

### **Geonosis**

The asteroid belt.  
The biomechanics of the Empire's war machines.

### **Hoth**

How do the Imperial walkers move ?

### **Dagobah**

What is the Force in *Star Wars* ?

**Kashyyyk**

Why are the trees so tall ?

The missing link between humans and apes.

**Endor**

A few notions of planetology.

The killer Force lightening bolts of the Emperor: possible or not ?

## Beyond the exhibition

### **The exhibit facilitating schemes**

An exhibit facilitating program accompanies the exhibition : a visit with commentary and two workshops invite the visitor to discover scientific phenomena through the work of George Lucas.

### **The Internet Site**

The portal cite-sciences.fr is devoting a whole site to **STAR WARS: THE EXHIBITION**. Like the entire site de la Cité, it pursues two objectives: presenting the activities (exhibitions, exhibit facilitating schemes, lectures, and debates...) and offering a platform of content and information to Web surfers.

Visitors can thus prepare their visits, purchase their tickets online, print the plan of the exhibition, and access a description of its contents. The site lists the exhibit-facilitating schemes and films for the general public and for specific types of visitor (school parties, visually-impaired or deaf visitors). The other pages are a set of contents for going further in discovering the exhibition and the themes that it broaches.

### **Conferences, debates, symposia**

Alongside **STAR WARS: THE EXHIBITION**, la Cité des Sciences et de l'Industrie is organising, from February to March 2006, a lecture cycle that studies the links between science and science fiction. Scientists of various disciplines, and also historians, and geographers, give their views on the universe and the creatures imagined by George Lucas in order to try to understand how the films have become a modern expression of mythology.

This cycle will take place on Wednesdays from 6:30 p.m. to 8:30 p.m.

February 21, 2006

#### **Star Wars dans l'histoire des mythes**

##### **(Star Wars in mythology)**

Pascal ORY, historian, University of Paris1

February 28, 2006

#### **Coruscant : autoportrait d'un monde urbain en crise**

##### **(Coruscant: self-portrait of an urban world in crisis)**

Alain MUSSET, geographer, Ecole des Hautes Etudes en Sciences Sociales (EHESS) [School for Higher Studies in Social Sciences]

March 7

#### **Star Wars et la physique**

##### **(Star Wars and physics)**

Roland LEHOUCQ, physicist, Commissariat à l'Energie Atomique (CEA) [French Atomic Energy Research Centre]

March 14

***La saga des robots***  
***(The droid saga)***

Raja CHATILA, robotics specialist, Laboratoire d'Analyse et d'Architecture des Systèmes (LAAS-CNRS) [Systems Architecture and Analysis Laboratory]

March 21

***La vie dans le cosmos***  
***(Life in the cosmos)***

François RAULIN, exobiologist, Laboratoire Interuniversitaire des Systèmes Atmosphériques (LISA) [Inter-University Laboratory for Atmospheric Systems]

## **Film showings**

### **Free-for-all in space**

The success of *Star Wars* gave a new lease on life to the “Space Opera” mode. A genre that had already delighted Hollywood in the 1950s.

Intergalactic empires, bellicose extraterrestrials, space battles on the big screen... At the end of the year, from December 20 to 30, 2005, la Cité des sciences et de l'industrie proposes an opportunity to see or to see again eight science fiction films set in space. Without trying to be exhaustive, the cycle of films presented brings together works echoing the universe of *Star Wars*, either because they inspired George Lucas, or because they are heirs to *Star Wars*.

### **Forbidden Planet**

Fred MacLeod Wilcox, 1956, US, 1h38, colour, the original English version with French subtitles

In 2200, a spaceship goes to the planet Altair 4 in search of survivors from an expedition that left 20 years earlier. They are met by Doctor Morbius, who warns them of an evil force.

The film marked the cinema of the time, and illustrates the first attempts at Space Opera. Robby the robot, the special effects, and the representations of a more advanced civilisation bear witness to the inventiveness of its creators, and were to stimulate the future directors of science fiction films.

### **Star Trek: The Motion Picture**

Robert Wise, 1979, US, 2h09, colour, version dubbed in French

In the XXIIIrd Century, an unknown invader of unstoppable destructive power is threatening the Earth. The famous starship *USS Enterprise* and its crew receive the mission to intercept it.

Fired by the global success of the television series of the same name, created in 1966, and encouraged by the success of *Star Wars*, Paramount threw itself into making the film. Although the “Star Trek phenomenon” is based on an idealised vision of the future of humankind, it nonetheless displays a manifest taste for interstellar fights and the fear of seeing technology come to power.

### **Flash Gordon**

Mike Hodges, 1980, Great Britain, 1h 51, colour.

Flash Gordon, captain of the American Football team the New York Jets, is propelled into space against his will. He lands up on the planet Mongo, and he falls into the hands of the fearsome Emperor Ming.

Before being made into a film, Flash Gordon (or “Guy l'éclair” in France) was originally a comic-strip cartoon (1934) then a television serial in three parts (1936-1940) and a full-length movie (1936). The adventures of this hero enthralled generations of children and influenced Georges Lucas in creating his own universe.

### **Les Maîtres du Temps (Time Masters)**

René Laloux, 1982, France, 1h18, animated film, original version in French

On the planet Perdide, a couple of settlers are killed by terrifying hornets. Their son Piel manages to escape with nothing but a microphone which is to be his sole means of communication with Jaffar, his father's friend, dispatched to save him.

Spaceships, winged and faceless humans, and an army of hornets people this peculiar world in which the strangeness of the landscapes is emphasised by the features of Moëbius. A journey through time that questions our origins.

### **Dune**

David Lynch, 1984, US, 2h15, colour, original English version with French subtitles.

In the year 10191, on a desert planet, humans are fighting for Spice, a miraculous substance that procures longevity and power. The renaissance of the planet and the survival of a whole people depend on this combat.

This super-production, adapted from the best-seller of the same name by Frank Herbert, works thanks to the talent of David Lynch. He succeeds in giving us a saga of fantastic images, and gives an original form to this initiatory tale, as old as the hills: the victory of the Human and of the Mind over the forces of Evil. *Dune* and *Star Wars* use a similar social and political world.

### **Spaceballs**

Mel Brooks, 1987, US, 1h36, colour.

In a far away galaxy lives a race of egotistical and bellicose beings called Spaceballs. Having squandered their resources of pure air, they decide to appropriate the atmosphere of the peaceful planet Druidia... A parody of science fiction films with strings of gags. Although the main storyline is based on *Star Wars*, Mel Brooks adds references to other cult films like *Star Trek*, *Planet of the Apes*, and *Alien*.

### **Titan AE**

Don Bluth and Gary Goldman, 1999, US, 1h26, animation, version dubbed in French.

In 3028, the Drej, ruthless extraterrestrials, have destroyed the Earth and reduced the surviving humans to slavery. There remains a hope of saving humankind: the young Cale must recover Titan, a mysterious spaceship designed by his father and hidden in a far-flung corner of the Universe.

A space epic to rock music. A mixture of conventional animation and of synthetic images showing genuine graphic invention. Two great cartoon talents set themselves a daring challenge: to make an animated film for teenagers. They have succeeded!

### **Galaxy Quest**

Dean Parisot, 1999, US, 1h42, colour, version dubbed in French

Heroes of a famous science-fiction television series, the actors are playing with lassitude in front of their fans when they meet the Thermians... They are then stupefied to discover that their film has been an interplanetary success!

Adventures in which reality and fiction merge. A parody that is based on nostalgia and on fine character sketches of actors. A great tribute to science-fiction fans and in particular to *Star Trek* fans.

## **Media library**

Prepared by the media library of la Cité and accessible to all age groups, a catalogue "Pointdoc" gives multiple references on themes related to the exhibition: astrophysics, robotics, visual effects and cinematographic technologies as well as a large selection of science fiction works, works analysing science fiction, and documents on *Star Wars* are available, consultable on site in the library, or on line.

## **Publication**

### ***"Faire de la science avec Star Wars" (Science with Star Wars)***

Roland Lehoucq

"Le Collège de la Cité" collection, co-published by la Cité des Sciences et de l'Industrie, Les éditions Le Pommier and LucasBooks.

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The *Star Wars* saga has enjoyed considerable success. It shows futuristic technologies which clearly outstrip our current technologies. But is it possible to say what is science and what is fiction, what is dream and what is reality? By using the tools of physics to decrypt certain scenes of the film, Roland Lehoucq investigates: what is the nature of the Force of the Jedi Knights? How does a lightsaber work? How do the interstellar starships move? The idea is not to destroy the dream part that is inherent to any saga, but rather to use it to talk physics in a fun way. The author, Roland Lehoucq, is an astrophysicist at the Commissariat à l'énergie atomique (French Atomic Energy Research Centre) of Saclay. An impassioned disseminator of scientific knowledge, he is the patron every year for several primary school classes in order to acquaint the children with astronomy and with scientific discovery, and he has already published several popularisation works.

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## Credits of the exhibition

**STAR WARS: THE EXHIBITION** is design by la Cité des sciences et de l'industrie from archival items from the Lucasfilm Ltd. collection

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