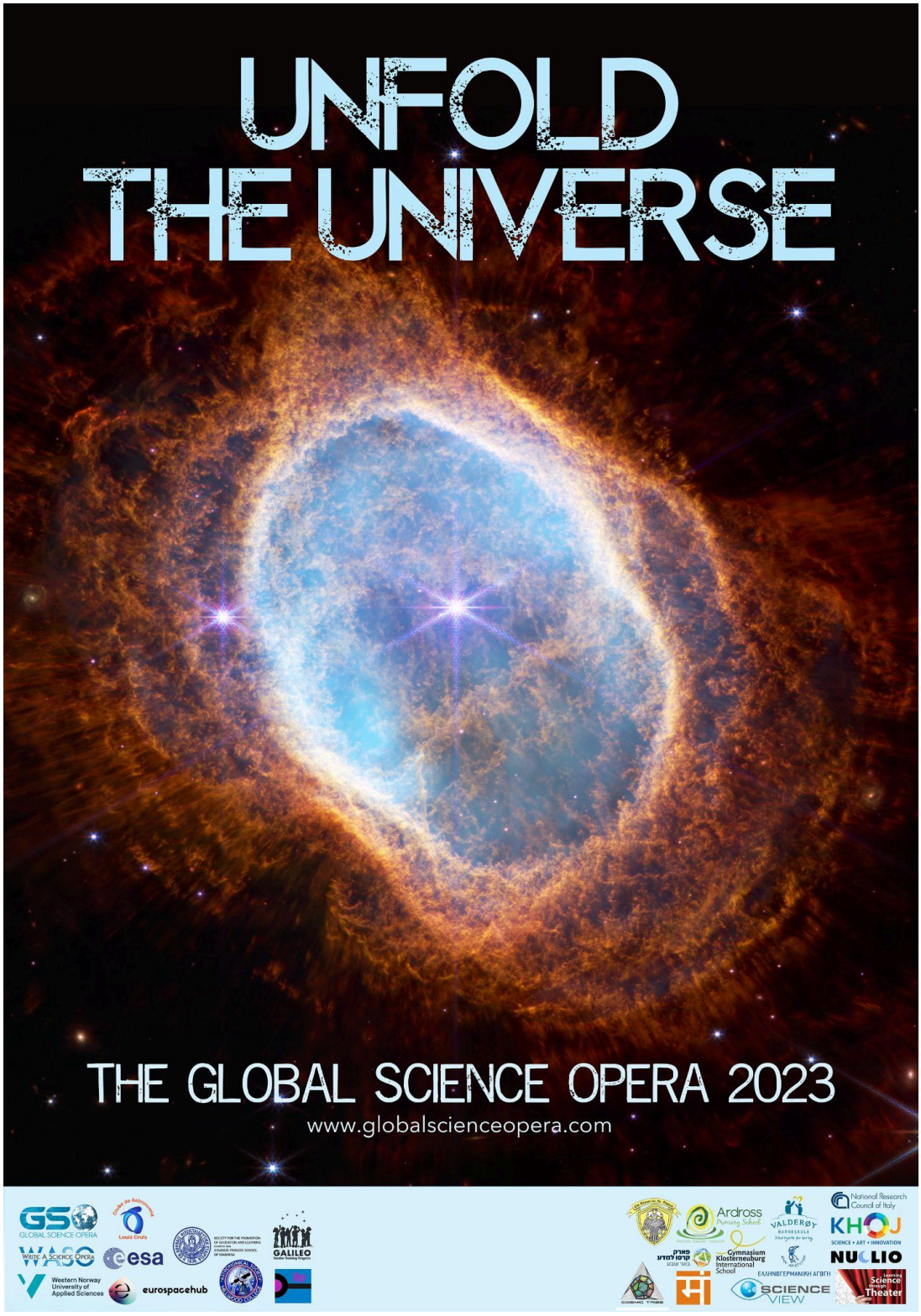
Unfold the Universe

Global Science Opera 2023



Short project presentation
The Global Science Opera (GSO) is an international educational project, inter-disciplinary between the fields of science and arts. Students from primary to university-level, teachers, researchers, artists and scientific institutions (like CERN and ESA) collaborate in creating and producing an artistic presentation of a common scientific theme and perform it simultaneously on the world-wide stage of the internet.

Global community
The work is voluntary, so no funding is connected to the participation. However, you will be part of a large international community, promoting peace through partnership and collaboration, promoting a sustainable future through creative education, and creating friendships across national and cultural borders.

Resources and information
On our website, you can find more information about the project, the methodology, teaching-material, and links to previous annual operas: www.globalscienceopera.com
For additional teaching-material and participation in a teacher-training workshops and community, please check out: http://gso4school.eu

Scientific topic 2023
The scientific topic for this year's opera is inspired by the imagery and material shared through the WEBB telescope. NASA's biggest and most powerful space telescope ever launched on Dec. 25, 2021! The James Webb Space Telescope, or Webb, is orbiting a million miles away and will reveal the universe as never seen before. It will look at the first stars and galaxies, study distant planets around other stars, solve mysteries in our solar system and discover what we can't even imagine. Its revolutionary technology will be able to look back in time at 13.5 billion years of our cosmic history.For more information, see here:
https://www.jwst.nasa.gov/
James Webb Space Telescope Website

Webb Mission Overview

Introduction to the Webb Telescope Video

"29 Days on the Edge" Video

Scientific inspiration provided by

NASA and WEBB telescope

Title
Unfold the Universe

Poster
Seen as above. If your group/school participates, please send me a logo, and it will be added to the poster.

Teaching resources connected to Webb:
(4th grade and up)
https://spaceplace.nasa.gov/james-webb-space-telescope/en/
K-12:
https://www.nasa.gov/stem/nextgenstem/webb-toolkit.html
Videos:
https://www.youtube.com/playlist?list=PLcy1hEnsejK2FkUtmSH0slXxenIFHddYN

Contact information
For information or help, please contact:
Janne Robberstad at Western Norway University of Applied Sciences. She is the production manager of the Global Science Opera and can be reached here: jro@hvl.no
Mobile: +47 952 45 462

Social media
GSO website: www.globalscienceopera.com
GSO Facebook-group: https://www.facebook.com/groups/789177754458061
GSO vimeo-page: https://vimeo.com/user127264734
GSO instagram: https://www.instagram.com/scienceoperaglobal/
GSO Twitter: @GlobalSciOpera
GSO4school website: http://gso4school.eu

@scienceoperaglobal #globalscienceopera #unfoldtheuniverse

Technical information

Performance
The premiere is on the International Children's Day: November 20th, 2023 at 2 pm CET. The opera will be shown simultaneously on YouTube, streamed from HVL, Norway. The link will be distributed a week before the premiere. The opera will also be available later on YouTube. The link will be published on the GSO website:
https://globalscienceopera.com/productions/thrive-2021/

Live-streaming
Live-streamed scenes make the opera come to life!
For live-streamed scenes we have technical rehearsals and tests occur either the day before or the day of the premiere. Make sure you have a place from which to perform your section of the

opera with high-speed internet on the rehearsals and on the performance. If you are live-streaming, we need a back-up film in case of technical problems.

Scenes

Due to the consideration of the total time-frame of all scenes must be no longer than 2 minutes. All scenes must have subtitles in English. If you need help adding these, please contact Janne before November 1st: jro@hvl.no

Please send all edited **films** via https://wetransfer.com to jro@hvl.no

Credits

Please send all names and logos for the credits before November 10th to jro@hvl.no
Please save us a lot of work by simply writing the names in an email, no excel-files or fancy fonts, no numeration or columns, just names. That's it.

Deadlines

Due to previous experience with lots of late-comers, please note that all deadlines are November 1st in this production:

November 1st	Confirmation of signed letters of consent for all participants
November 1st	All contributions for the Global Dance Mob or the GSO choir
November 1th	All other scenes (with added subtitles)
November 1th	All credits (and logos) written in Word-file

Ïdeas: (feel free to add)

Could an opera about the nature of light include two parallel stories – one shaped as a wave and the other shaped as a stream of photon particles?

Or four substories: infra-red, x-ray, gamma and ultraviolet??

Time

Is there anyone out there?: music as a connecting tool with alien civilizations

Online sessions

When	Who	What	Where

December 17th:	GSO4SCHOOL	GSO4SCHOOL final conference in Athens, Greece (and also online) Program will be shared	**https://www.youtube.com/watch?v=0QJCIILRIE4** Conference starts at ca 1:25 Overview of content/program here: http://gso4school.eu/conference-programme/
January 27th, 2 pm cet:	Dr Rosa Doran Gustavo Rojas	What can the WEBB telescope do, what the difference is from Hubble, what we can learn, and not least, how we can teach this to our students, put in the context of national curricula?	**https://vimeo.com/793371940** Password: Universe
February			
March 3rd	**Senior Astro-physicist at the Smithsonian Astrophysical Observatory, Dr Martin Elvis**	**Space-mining Link to his book "Asteroids: How Love, Fear, and Greed Will Determine Our Future in Space"**	**https://vimeo.com/804413969 Password: Universe**
April 14th	**Runa Godø Sæther**	**"Unfold the Universe rap rehearsal for the Global Science Opera Choir" Find text here:** https://docs.google.com/document/d/1y9g0YxW9cf62xTL9wusDW-NYh_A3s0r0/edit?usp=sharing&ouid=102180742483354235452&rtpof=true&sd=true	**https://vimeo.com/817671925 Passcode: Universe**
May …, 2023	Ellis del Sol	Postponed until further	

02:00 PM Oslo		notice!	
August 25th at 15 pm cet	Ellis del Sol	Creativity workshop: The creative flow formula Creative flow vs flow of creativity Creative generating of ideas - what does it take for an idea to grow into an artistic product?	
September 15th at 15 pm cet	Thomas Sjøen	all about the technical do's and don'ts with lots of practical tips on how to film, record and edit your scenes.	https://vimeo.com/864822967?share=copy Password: Unfold
October			
November 20th	**Unfold the Universe**		

Overview of Scientific sub-topics and scenes

Country	**sub-topic/ scientific question**	**Contact**	**Collaboration/ Need help with**
1 Croatia	Dancing little stars	Sanja	Delivered Credits ok
2. Colombia -	What is a **telescope** and how does it work? How does the Webb telescope work? How is it built? Why does it need to be so cold?	Jullián Montaña, Dean - School of Arts- Universidad Sergio Arboleda	
Spain Institut Pedro Espinosa (Antequera)	Unfolding the Universe is an enormous task carried out with complex instruments. The Antequera students Unfold the Universe with devices built in the classrooms: counting stars, identifying the constellations that	Carmen Diez	

	organize them and positioning them on the planisphere is their achievement.		
3	What is invisible **light**? And what can it tell us? Explain the light-spectre (From infra-red to ultra-violet) Why is space black? How far can light travel?		
4	What can Webb (light) tell us about **the Universe's history**?/ How can the Webb telescope teach us about the beginning of the universe? How can the past of space be discovered? When did time start?		
5 Romania	Who owns space? What is space-mining? What is the **future** of space-travel? How much can be explored and where do we draw the line? How far can we go and where can we go?	Prof. Dr. Oana Susu "Dimitrie Cantemir" Theoretical High School in Iasi	Delivered!
6 Kina?	Perspective on length. What is a **light-year**? How fast can we travel? What is space time?	Hongfeng?	
7 USA	What is an **exoplanet**? How far is the nearest exoplanet? What do we know about Proxima Centauri? Can we create an artificial atmosphere on exo-planets? If we are living on earth why are we searching for other habitable planets?	Jeff Steinert at Arizona School for the Arts in Phoenix, AZ	Delivered
8 UK	What do we do with the knowledge gathered by Webb? How can it help us to **live wiser** lives on Earth? Put things in perspective?	Jonathan	LIVE performance!

9 Austria	What is a **black hole**? What happens inside a black hole? What is the biggest black hole ever found? Why don't black holes have any color and how does it attract subjects and why? How was it created? If anything goes inside the black hole, is there any way out?	BG/ BRG Klosterneuburg	Sanjukta Mukund
10 USA	Is there **life** on other planets? What kind of life? How can we get in touch with this life? And do we want to? Are there any other planets where life can be parents?	Nicole, Vermont	
11 Australia	If **atoms** can't be destroyed or created, then how did atoms come into existence? Atoms cannot be destroyed then what does black hole do? What is after the universe, is something after atoms?	Auriol	
12. Portugal (Abrantes)	How big is the universe and why is it so big? What is space made of? How many galaxies are there in space? How was the universe created?	Mª José Oliveira and team from Escola Básica e Secundária Dr. Manuel Fernandes	
13 Italy	Do we **age** the same way on other planets? Why do we age faster while in space? Will you not age if you keep visiting planets with the different time relativity?	Ana Maria	
14 Greece	What is the **dark matter**? What is dark energy?	Marianna B.	
15 Brazil	Do parallel universes exist? What is a **multiverse**?	Da Barra (Marcelo, Simone, Aline, Astrid)	

16 Brazil	If a mirror was 20 light years away, is it possible to **time travel**?	Karina/ Fundação Municipal da Infância e da Juventude (FMIJ)	
17	If we go faster than the speed of light is it dark?		
18 Everyone!	**Unfold the Universe** Rap & dance	Everyone can join in!	Runa Godø Sæter
19 Brazil	“Do you understand the gravity of the situation?”	Kesia & co	
20 Ukraine	Universal Peace	Volodimir /Jennifer	Delivered!
21 Greece	"Is there anyone out there?: music as a connecting tool with alien civilizations". It concerns the twin spaceships Voyager 1 & 2 that were launched by the USA in 1977 and their purpose was to explore space and to carry a message from earth to other galaxies. Among other samples of human culture they also contained 27 excerpts from various types of music.	Anastasia	Delivered
22.			
23. Turkey	The stars and the notes	Julide	
24 Madeira		Fernanda	
25. Pakistan	Light pollution	Rayan	Delivered!
26. Portugal	Exoplanets, a path to new knowledge about life?	Marlene Serras and team from Agrupament	Delivered

		o de Escolas Frei Gonçalo de Azevedo.	
27. Portugal	Human Solar System	Ondina Castanheira and team from Agrupamento de Escolas do Alto do Lumiar	
Portugal	What does the sky of Castelo Rodrigo show us?	Célia Paraíso, Maria João and team from Agrupamento de Escolas de Figueira de Castelo Rodrigo	Turmas dos 7.º anos Delivered!
Portugal	Why do we look upon the sky? Like butterflies we are attracted to the Light...	Filomena Costa and team from Escola Secundária Inês de Castro	
Portugal	Is there life beyond the earth?	Célia Paraíso, Maria João and team from Agrupamento de Escolas de Figueira de Castelo Rodrigo	Turmas do 9.º anos Delivered! Credits ok

Greece	the big bang, the creation of our solar system and also the desire to discover the mysteries of the universe	Alex (Yvonne)	
UK	a version of the official *Unfold the Universe* theme.	Paul	
Brazil	Entanglement Universes	SESC Kesia	
Brazil	“Here is my place”	Sao Joao de Itabapoana.	

Unfold the Universe Song/Rap, link to text: Unfold the universe rap.docx

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Video settings for exporting:

File format - Preferred: H.264 or ProRess 422
Frame size: 1920x1080 (16:9)
Frame rate: 25p (We can also manage 50p). (PAL-standard)
Field Order: Progressive

Recommended bitrate (If you are able to choose):
VBR 2 pass
Target bitrate of 25 and Maximum Bitrate of 40.

Audio settings on exports:

Audio Format: AAC
Samplerate 48kHz (Also important if you are recording audio to have the same samplerate on the recording device)
When it comes to audio level we will apply compressor and limiter to keep audio levels in the same range. If you have the option to export with “Loudness Nomalization” it will be the ITU-R BS.1770 Loudness Standard with Target Loudness of -24LUFS

Streaming to us:
Video codec: H.264
Frame size: 1920x1080 (16:9)
Frame rate: 25p. (PAL-standard)
Scanning/Field Order: Progressive
Encoding bitrate: CBR 9000Kbps is recommended
Audio Codec: AAC
Audio Bitrate: 128kbps
Audio Chanels: 2 (Stereo)
Audio Samplerate: 48kHZ

Try to have the audio levels where highest sounds should be -6db and lowest sounds not under -30db

And to not have confusions in delays. Have a countdown before your performance with minimum 5min countdownclock and no audio. And also have a text title that let us know who you are.

Information about Greenscreen

There are two ways of doing greenscreen and will have a video link for it further down:

One way is to do it is by using OBS (Open Broadcaster Software) and can be downloaded from here:
https://obsproject.com/download

Here are two guides on how to get started and how to do recording settings.
https://obsproject.com/kb/quick-start-guide

https://obsproject.com/kb/standard-recording-output-guide

I didn't find a good video on green screen but made a video on the link under. I also made a quick guide on how to use ClipChamp (Free web editor) in that video.

Quick green-screen tutorial:
https://vimeo.com/869553951/0899420952?share=copy

Extra info for Sources in OBS. You can connect a lot of different cameras to the computer with USB. But often you will need something called a "capture card". This is to make HDMI-signal to USB. And i would ask the IT department or a "tech-wizard" to help with ordering it and installing the correct drivers.

Letter of Permission for participation in the GSO

(can be copied from here and made into a two-paged document, ready for signing by all parents/guardians of participants)

www.globalscienceopera.com

Dear parents of Global Science Opera (GSO) participants,

This is an inquiry about participation in an international educational project where the main purpose is to the creation and performance of an opera. In this letter we will give you information about the purpose of the project and what your participation will involve.

Purpose of the project

The Global Science Opera is the first opera initiative in history to produce operas as a global community. In 2023, the opera "Unfold the Universe" is inspired by the creative mind. Around 20 countries are represented. The main objective is to collaborate on the creation of an opera inspired by a scientific theme.

The opera will be streamed online by the HVL´s MediaLAB on the International Children´s Day, November 20th, 2023 at 14:00 CET/13:00 GMT.

This letter does not relate to research on the GSO. This letter relates only to the creation and performance of the opera.

Why are you being asked to participate?

GSO is non-profit and is realized as an initiative of global creative education. GSO collaborates with various other initiatives (please see the details at the website www.globalscienceopera.com). In the event of research being conducted, the relevant permission will be requested in addition to this letter, and at a later stage. GSO will not publicize the names of children participating in the operas.

GSO is open for all interested participants (schools). The schools participating in GSO do so as a result of the GSO organizers' being contacted by the schools, or by GSO organizers' approaching schools in our networks. In the even of more than one school in a single country expressing interest to participate in a GSO production, the GSO organizers choose the participating school according to recommendations retrieved in dialogue with local teachers. In some cases it may be possible to include more than one school per country in a single GSO production.

Who is responsible for the education project?

GSO is implemented as a collaborative network, and coordinated by Western Norway University of Applied Sciences (HVL).

A list of the active institutions and the GSO organizers may be found on www.globalscienceopera.com. *(This list is updated approximately once a year).*

Participating pupils may cancel their participation at any time before the video recording of the opera scene in which they are participating is sent to the GSO coordinators at Western Norway University of Applied Sciences (HVL).

What does participation involve for your child?

Participation involved the creation of a short opera scene by each participating organization (school, art academy, etc), and the performance of that scene by means of video or live streaming.

Following the opera premiere, a recording of the complete opera will be uploaded on HVL's youtube and GSO's VIMEO channels for permanent public display. A link to the opera will also be provided on the GSO website. The approval for participation is therefore not limited in time.

The published operas may be freely used for educational purposes. It is therefore required for parents to give permission for their childrens' participation.

Your privacy – how we will store and use your personal data
We will only use your performance (video) for the purpose(s) specified in this information letter.

Legal basis
Western Norway University of Applied Sciences (HVL) has assessed that the processing of personal data is necessary for purposes related to the legitimate interests pursued by the data controller, cf. GDPR article 6 (1) f).

Where can I find out more?
If you have questions about the project, or want to exercise your rights, contact:

- HVL via *Oded Ben-Horin (oded.ben@hvl.no)* or *Janne Robberstad (jro@hvl.no)*.
- Our Data Protection Officer: Trine Anikken Larsen, e-mail personvernombud@hvl.no, telephone +47 55 58 76 82.

Participation is voluntary
Participation in the project is voluntary. There will be no negative consequences for you if you chose not to participate.

In order to grant your permission, please sign the following and deliver this to the GSO contact in your country/location:

I hereby give permission for my child _____ to take part in the Global Science Opera production "Unfold the Universe". I understand that this opera will be broadcast online, and will be published on the above-mentioned media channels.

Signed: _____