



Guilherme Abreu

Gravity is the key to  
understand the universe



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# 2021 Evaluation Institute

Agnes Chavez

October 7, 2021

# BioSTEAM International: Space Messengers

We are evaluating the BioSTEAM International Youth Exchange workshop between 30 students in Portugal and 30 students in Taos, New Mexico, and the culminating Space Messengers event which includes:

- 7-week virtual interdisciplinary workshop led by artists, scientists and cultural experts
- Immersive and interactive installation traveling to cities around the world
- Global Virtual Reality live streaming event in New Mexico
- GIS Storymap that tracks and stores data about the people, place and events of the project through dynamic storytelling
- STEMarts Apprenticeship program for women and girls to develop STEAM skills in the real world.



**19,290 satellites loaded**

# 7-WEEK VIRTUAL YOUTH WORKSHOP

**Space Messengers**

**Multi Messenger Futures**

**Emilie Martinez**  
What happens when the aliens are hostile?

**Nadajah Kostich**  
Sustainable travel will be spacecrafts that are environmentally friendly to all environments that have been discovered.

**Guilherme Abreu**  
Does wormholes really exist? Because it is such a difficult thing to think about.

**Gina Gargone**  
What will sustainable space travel look like?

**Nadajah Kostich**  
If we travel farther then our galaxy could we possibly be sucked into a black whole along the way?

**Emilio Martinez**  
If black holes consume light what else can we put in a black hole?

**Ana Carla Oliveira**  
Which Citizenship values should we have in mind when creating communities on other planets?

**Guilherme Abreu**  
Is it really smart to send messages for other possible hostile alien species, and kind of call them to visit our planet?

**Sol Valadez Lima**  
I believe that there is life developing on mars

**Tiago Salvador**  
To colonize the other planets, probably Mars first, we must study the landforms of the planet and gather a lot of scientific knowledge before we start to shape the planet with new rules

**Emilio Martinez**  
Where will life be in the universe?

**Isabella Almeida**  
Do you believe that we will be able to receive messages from other species in the universe?

**Joana Branco**

**Siena**

**Emilio Martinez**

**tori thomas**

**Guilherme Abreu**

**Isabella Almeida**

**Alison**



Collaborative platform called SPACE BOARD collects data from workshop

# BioSTEAM International: Space Messengers:

A culminating immersive and educational sci-art installation



Video silhouettes captured from participating Students and live audience

Each point in the silhouette is a student drawing or video and can be zoomed in to see video clips from workshop-students and scientists

Interactive zone

Space Messages scrolling from youth workshop and live audience

**Patrícia Galveias**  
It is extremely important for us to broaden our horizons and open our minds to different beliefs and ways of living, if we want to live in a respectful, sustainable and inclusive community.



# Our evaluation questions

## MIDDLE/HIGH SCHOOL STUDENTS

- Are students demonstrating curiosity and interest to seek and participate in more sci-art and interdisciplinary experiences?
- Did students develop artistic, scientific and humanistic literacy?

## TEACHERS/SPEAKERS (scientists, artists, cultural experts, facilitators)

- Are teachers continuing to use the STEMarts tools and continuing international exchange?
- Are scientists/physicists learning new ways to communicate science through public engagement?

## COMMUNITY (All participants + live audience at events)

- Does the community walk away feeling hopeful about the future and more receptive to scientific literacy?
- Is the sci-art installation experience developing understanding that science and art are diverse and valuable ways to understand, communicate and connect with the world around us?



# SPACE MESSENGERS

## Our proposed data collection methods

### STUDENTS AND TEACHERS/SPEAKERS

- Assess outcomes through a series of pre, interim and post surveys for teachers and students.
- Debriefing sessions before and after workshop and event with teachers and speakers.
- Analyze testimonials from teachers and facilitators (Padlets, letters, etc)
- Evaluate the student SPACE MESSAGES and student drawings collected through the workshop SPACE BOARD to observe science learning and critical thinking

### COMMUNITY + LIVE AUDIENCE

- Event organizers use tracking and manually count at events/exhibits to estimate attendance.
- Observational data at INTERACTIVE ZONES to track whether participants engage with an exhibit and how long.
- Analyze the live audience SPACE MESSAGES sent via mobile devices/STEMarts website to evaluate impact and feelings



Experimenting with dynamic visual tools for data collection and measuring impact

# Teaching and Learning with GIS

GIS FOR STUDENTS

GIS FOR TEACHERS

GIS NM HIGHLIGHTS

GIS INDIGENOUS MAPPING

Create a STEMarts Lab GIS Storymap to collect data and track impact through dynamic storytelling

- Events
- Schools
- Science labs
- Cities
- Countries
  
- Artists
- Scientists
- Teachers
- STEAM Apprentices
- Youth Ambassadors
  
- Blogs
- Videos
- Photo Galleries



# STEMARTS LAB PROJECT - Space Messengers - ESSS, Oeiras - TISA, Taos, New Mexico

Sharing work, thoughts and ideas

**Space Messengers Project? What is that? - Objetivos, Equipa, Artistas, Participantes e outros aspetos do Projeto.**

## Project Mission



stemarts.com

Space Messengers

In this interesting, intensive and inspiring 8-week project, students met new friends, developed their English language skills, learned about Space, Physics, Astrophysics, Science, Arts,

**Workshops with Physicists, Artists, a Philosopher of Science, a Lakota Cultural Specialist and a NASA Communication Specialist - Aprender com os especialistas e desenvolver competências diversas**

**Learning about Physics and Space Exploration, Philosophy, Art, Sound and Lakota Culture; Thinking and writing about the topics.**



**Student Work - Space Messages, Word Clouds, Images, Silhouettes and Drawings.**

**Creating Avatars and getting ready to meet the team partners from Taos, New Mexico.**



Avatars

Foi divertido criar Avatars e pensar em perguntas para conhecer os

**Is there any connection between the Space Messengers Project, Civic Education and Sustainable Development Goals? (alunos do 9º)**

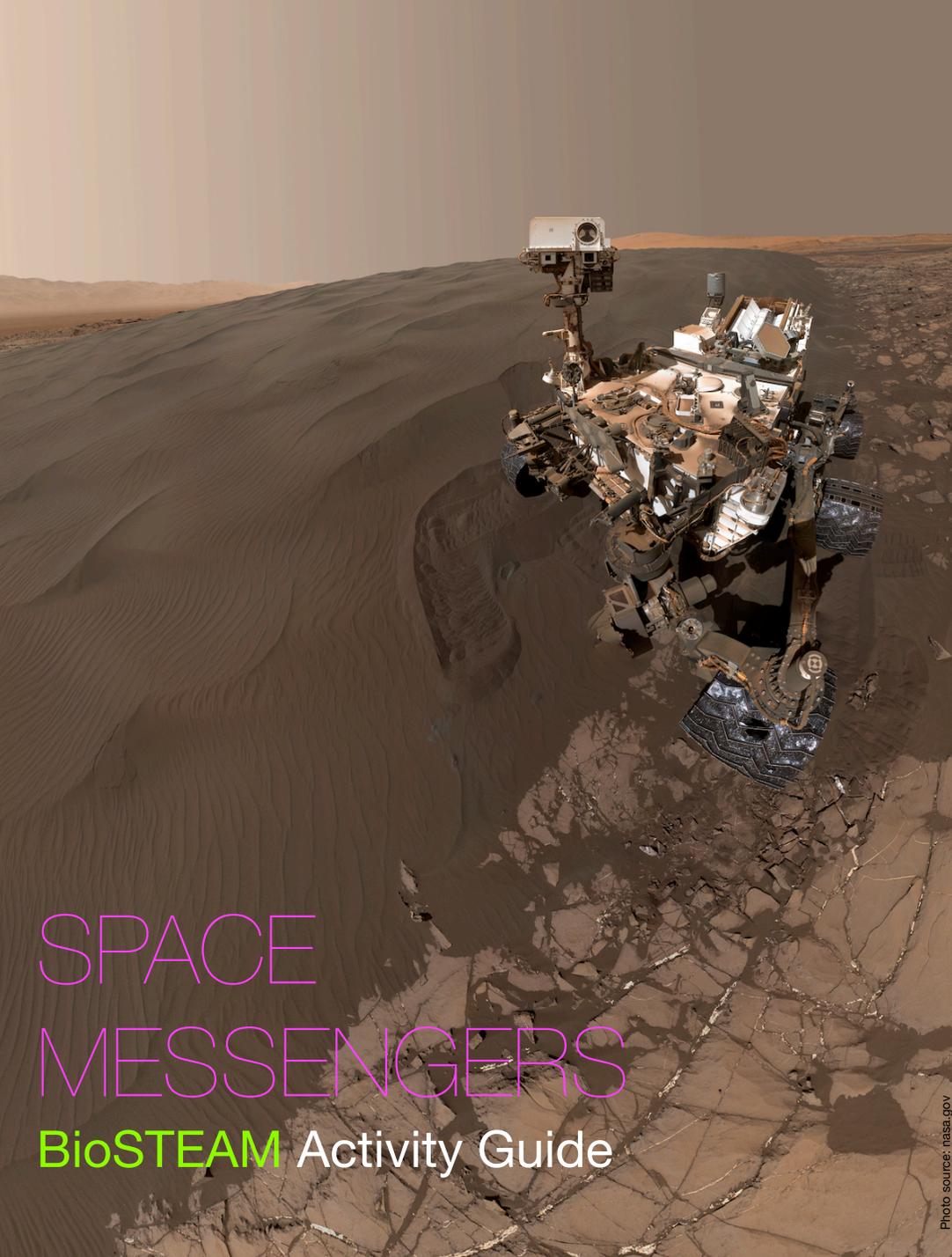
**Listening and Writing activity**



vevo

YouTube

Tim McGraw - Humble And Kind (Official Video)



SPACE  
MESSENGERS  
BioSTEAM Activity Guide

# Our evaluation timeline:

## March 2021 (WORKSHOP)

- Collect pre-surveys from completed workshop
- Collect pre-testimonials from teachers/speakers

## October 15-17, 2021 (EVENT)

- Culminating sci-art installation launches at Festival Internacional de Ciencia in Oeiras, Portugal
- ‘Global Virtual Reality Youth Day’ in New Mexico: Simultaneous livestream projection of Portugal installation

## October 18- November 18, 2021 (DATA COLLECTION)

- Identify Evaluation team
- Distribute/collect post-surveys
- Build the GIS Storymap- Enter data- geo-tagged artifacts from Storymap
- Train the Apprentices on how to contribute/collect data from the Storymap
- Collect space messages and other data from the live event
- Work with videographer to create video documentation including testimonials

## December 2021 (EVALUATION/ANALYSIS)

- Meetings with Evaluation Team to analyze data and create final Evaluation plan



## Plans for our results:

- Share with the creative team to help improve the interactivity, engagement and impact of the artistic elements.
- Share results with teachers and facilitators to build trust/ownership and gather feedback on curriculum instruction
- Share with Board of Directors for advise/feedback.
- Share with funders to demonstrate impact.
- Share with Evaluation team to help analyze and feedback.
- Use as a guide for project documentation and development of new features.



## Questions I have for the learning community:

- Can I get feedback on how I might improve my evaluation process? Is there anything I missed?



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exploration of resources on the  
Moon and Mars?

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What questions do you have for us?