THE SMELL OF SPACE: A CREATIVE APPROACH TO PLANETARY SCIENCE OUTREACH AND PUBLIC ENGAGEMENT. Rebeca Barcenilla Garcia, University of Westminster, London, W1W 6UW. (rebeca.barcenilla@my.westminster.ac.uk)

Introduction: ‘AromAtom: The Smell of Space’ is a student-led science outreach project, designed to engage the public with what are often seen as difficult subjects – space exploration, planetary science and geophysics. Whilst much of the science outreach work done in these areas targets audiences already interested in space, the aim of this project is to reach those audiences who have never engaged with space exploration and science, but who would be enticed by the subject if presented in a creative and evocative manner.

AromAtom utilizes the sense of olfaction to do exactly that, and uses ‘space-smells’ to hook the audience, and to ignite the curiosity and imagination of children and adults. It takes them on a journey during which they discover space by smelling odors related to the composition of planets and satellites of the Solar System, and to the accounts of Apollo and ISS Astronauts.

An Olfactory Encounter with The Solar System: The project takes participants on a guided tour of the Solar System, using their sense of smell as a guide. The tour has a number of ‘stops’, during which planets and satellites are explored in turn. At each stop, participants are surrounded by images of their location while experiencing a number of smells based on scientific data of planetary and atmospheric compositions, as well as geophysical processes that shape planetary bodies, such as volcanism on Io. At the same time, they are told why and how such odors might be found at different locations in space. Basic geochemistry, astronomy and geophysical concepts are weaved into the story to help form a realistic idea of what the planet or satellite might be like, and to give context to the experience.

Target Audience: Science is not just for scientists, and AromAtom is for everyone. At its most basic level, its primary goal is to demystify science by presenting it as a fun and accessible experience that anyone can participate in, regardless of age, education, background or disability.

Adults. Although participants with diverse scientific interests enjoy the experience and learn new things, the events are designed to reach audiences who do not usually engage with the scientific community, especially those from creative and artistic backgrounds, who often think of science as clinical and boring. The bizarre and unusual space-smells are used not just to enhance the learning experience, but to engage the imagination and prompt participants to ask questions and offer their thoughts and ideas, making the experience inclusive and interactive.

Children. Children enjoy an educational experience that provides inspiring and engaging learning activities related to planetary sciences. They learn about the origin and evolution of the Solar System, get excited about space exploration missions, and are shown that they too can be part of all the excitement, and perhaps one day, be a scientist making new discoveries about the Solar System, or even travelling to space.

Figure 1. Space-smells in the classroom and visual presentation explaining why space suits are necessary to survive in space.

Figure 2. Postcard sent to Curiosity Rover via the NASA website, during a science curriculum enrichment session at Elmhurst Junior School in the UK.
**Past Activities:** The pilot AromAtom exhibition took place in London on December 6, 2017, and was attended by artists, photographers, engineers, space science students and university lecturers. Since then, further events have been held in London, Glastonbury, Madrid and Barcelona, and podcasts about the project have been recorded and published in English and Spanish. Additionally, the project was piloted during eighteen school visits in the UK, where children aged 6-12 enjoyed learning about the Solar System and space exploration, and participated in a number of space related activities, including sending Mars-related questions to the Curiosity Rover via the NASA website.

![Figure 3](https://example.com/figure3.jpg)

**Figure 3.** Space-smells and printed space-tour guides at the AromAtom pilot exhibition in London on December 6, 2017, displayed below a NASA image of the Apollo 17 mission. Background image credit: NASA/ Marshall Space Flight Center.

**Future Activities:** In 2019, we are planning to make the project and resources available to the wider public at the London New Scientist Live Exhibition in October, and begin a collaboration with a project that aims to bring space science education to children with visual impairments.