



# LINC Activities

## ‘Star gazing’

LEARNING SHEET

IN THIS ISSUE

## About the activity

The ‘Star gazing’ activity has been suggested by the 1<sup>st</sup> Primary School of Volos. The activity aims at enhancing the partnership between family and school. As a matter of fact, teachers, parents (including extended family members) and children are brought together in order to ‘learn’ and ‘explore’ the night sky. Experts (scientists and members of astronomy groups) help them observe the night sky and explore the universe.

### Aims and objectives:

The activity aims at:

- Bringing teachers, parents and students together
- Forging the link between family and school
- Encouraging and enhancing active engagement of parents in school life
- Embracing the engagement of experts in school activities
- Providing opportunities for students-experts interaction

Regarding educational goals and pedagogies, there is a strong focus on:

- Exploration of scientific concepts in a creative and meaningful way
- Authentic and exploratory learning
- Learning in a community of practice
- Raising students’ imagination and interest for Science
- Use of ICT to support the learning process

### Who will be involved?

- Teachers
- Parents and family members
- Students
- Experts and practitioners

### Get it Started!

- Contacts with astronomers and practitioners in the area of astronomy
- Obtaining parents’ participation agreement
- Creative introduction of the topic in the class
- Addressing key questions that will help exploration
- Choose a clear night and find an outdoor space ideally away from bright lights



### Educational Adventures with the Night Sky

Stargazing: a fun, unique, educational activity for teachers, parents and students.

Page 2

### ICT tools & mobile apps

Technology can facilitate learning and simulate exploratory educational experiences.

Page 3

### Follow-up activities in the LINC community

The LINC community will be used as a place to share experiences, ideas and outcomes!

Page 3

# To the 'sky' and back... in 7 steps

by LINC team

**1<sup>st</sup> step:** Contact the group of astronomers/practitioners in the area of astronomy

**2<sup>nd</sup> step:** Inform parents about this learning initiative and intervention

**3<sup>rd</sup> step:** Plan carefully the Stargazing activity in collaboration with the group of experts

**4<sup>th</sup> step:** Raise key questions to arouse students' interest and curiosity.

**5<sup>th</sup> step:** Encourage parents and students to work together in order to address answers to the questions that you raised

**6<sup>th</sup> step:** Organize the stargazing night event in which- parents, teachers and students explore the sky with the support of the community of experts

**7<sup>th</sup> step:** Encourage and monitor follow up activities in the LINC Community



## OVERVIEW OF THE IDEA

The '**Stargazing**' activity is a unique educational experience for the school community. Teachers, parents and children supported by a community of experts explore the sky, reflect upon scientific concepts, share experiences and interact with one another online and offline.

The exploration starts with **thought-starter questions** that trigger curiosity and interest. **ICT tools** can be used to simulate abstract phenomena. **Real-time observation**- with the use of scientific instruments- opens up avenues to the beauty of the night sky!

**Let's look up and wonder together!**

All the students need is an '**astronomy diary**', a **pen for keeping notes** during the stargazing event, a **jacket** (depending on the weather), a **red light torch** and a **clear sky!**



Add an **announcement** of the Stargazing activity in the **Event area of the LINC Community**. Place all the thought-starter questions there and encourage parents and students to work together to address answers. You may also raise relevant discussion in the class.

**Upload in the LINC community** all the necessary information for the parents in relation to the Stargazing event.

## Triggering interest and curiosity!

Here you can find a list of 'starter'-questions that can be raised prior to the star-gazing night event in order to raise students' curiosity and interest as well as to foster parent-student interaction. The addressing of an accurate answer is of less priority at this stage. What is important is for parents and students to start a journey full of knowledge, interaction and adventure. During the star-gazing night the experts will release the answers to these questions in a creative and explorative manner. Participants will be given the chance to gain an understanding of abstract scientific phenomena through observation and exposure to additional authentic and scientific methods.

### Key questions that can be raised:

- What is 'astronomy'?
- Do stars twinkle?
- What is light pollution and how it is related to star-gazing?
- Where do stars go during day-time?
- How many stars are out there?
- What are the stars made off?
- How can I tell which planet is which?
- What is the difference between a planet and a star?
- What is a comet?
- What is a meteor shower?
- What is a constellation?

## PLAYING WITH PICTURES



Gale Crater on Mars. Credit: NASA

## Crater on Mars

How was this picture taken? Try to raise your students' curiosity. Guide gently their thinking about scientific instruments.



Galileo's telescope-Picture retrieved from [1]

## Galileo Galilei- The father of modern observational astronomy

Provide your students with a picture and some clues that will allow them to learn more about the way the field of astronomy was developed and about the scientists that played a key role!

## ICT tools for Stargazers

ICT tools and mobile astronomy applications can be used prior to the real-time stargazing night event. For example, **Stellarium** is a well-known open source software that 'shows a realistic sky in 3D, just like what you see with the naked eye, binoculars or a telescope' (Stellarium official website). This makes it an ideal tool for looking freely around the sky while being at home or in the class. Encourage your students to explore the sky in the **Stellarium** platform, to indicate constellations and planets, to move around the sky or even travel through time!

A number of powerful mobile astronomy applications can also be used for home explorations (given availability of smartphones).



## Follow-up activities

Encourage reflection upon the scientific concepts introduced and interaction among the participants (*i.e.* parents, teachers, students, experts) through follow-up activities. Suggested activities are presented below:

## Post your experience online

Encourage the 'stargazers' to share their experiences online. Experiences can be documented using text, images or video. The Forum of the LINC community is an ideal place for online communication.

## Share your 'astronomy diary' online

Encourage your students to share their 'notes' online. You can guide and support them during this process. Their notes can raise the dialogue in the class and in the discussion area of the LINC community.

## Interviewing an astronomy-expert!

The stargazing event might be over, but the astronomers are still around! Encourage your students to form questions that can be addressed to the astronomers. Students can work in groups supported by their parents. The documentation of the interview can be posted online in the LINC Community. You can provide your students with guidelines on how to form questions and age-appropriate worksheets.



The LINC Community

## Find songs with 'space-theme' lyrics!

'Space' often inspires musicians! 'Can you find' songs with lyrics inspired by the space'? This is the key question in this activity. Answers and links to the songs can be posted in the LINC Community. Songs can be also recorded and posted online. This activity provides an excellent opportunity for students and parents to work together.

## Make a Star Finder!

Following instructions appear in NASA Space Place, support your students in making their own paper-based *Star Finders*. This activity may require student-parent-teacher collaboration. Do not forget to provide them with the necessary print-outs and instructions. The process of preparing Star finders can be film recorded and uploaded online.

For more details see online: <http://spaceplace.nasa.gov/starfinder/en/>

## USEFUL LINKS

NASA: <http://nightsky.jpl.nasa.gov/planner.cfm>

Google Sky: <http://www.google.com/sky/>

Stellarium: <http://www.stellarium.org/>

Mobile astronomy apps:

<https://play.google.com/store/apps/details?id=com.kreappdev.astroid&hl=en>

## ABOUT THE PROJECT

LINC portal: <http://www.linc-project.eu>

LINC community: <http://community.linc-project.eu/>

