



Nebula in a bottle

Creating stellar nurseries

Classroom Activity – Before visiting the Observatory

Overview

Age Range: 7 – 10 years

Prep. Time: 10 minutes

Lesson Time: 30 minutes

Cost per activity: 20 €, though most things are typically already owned

Includes the use of: Small glass container with a lid, cotton wool, glitter, water, food coloring, cups, pipette

Outline

In this activity, the students will gain knowledge of the observable universe and the spectacular sights to be discovered when observing it. They get to unleash their creativity with creating nebulae and along with this learn that the Universe can come in a variety of colors, structures and shapes.

Pupils will Learn:

- The grandness of the Universe and get a sense of how even though these nebula are comprised of the same things, they can have very varying expressions and looks.

Lesson Plan:

Description	Time	Notes
Introduction to the subject	10 min	See below for an explanation of a nebula.
Activity	20 min	Use PDF <i>StudentGuide_NebulainaBottle.pdf</i>

The online observatory collaboration consists of the following partners:

Baldone Observatory, Brorfelde Observatory, Cardiff University, Harestua Solar Observatory, Helsinki Observatory



Introduction to the subject:

A nebula is a remnant of a star and is produced, when a dying star explodes in a super nova and ejects the outer layers of itself, which are then spread out into a cloud. The nebula contains gas and dust. From these components, new stars can be created and in these clouds we can actually produce many more stars. It is nature's great way of recycling everything.

Since these nebulae are made from different exploding stars, the components of each nebula will be different, meaning that not one nebula looks the same. The size, colors and structure of a nebula depend heavily on the components of the dying star itself, along with the components and conditions of the area surrounding the star

Activity:

- Prepare the activity, like dyeing the water, dispensing the cotton wool, etc.
- Introduce the subject and teach the kids about nebulae. Here, it is very much recommended to also show them images of different nebulae for inspiration. These can be found online.
- Introduce the activity.
 1. Each student gets a glass jar, cotton wool and some glitter.
 2. The students put a small amount of cotton wool into the glass jar. This can be wetted using a pipette with the colored water. The students are encouraged to mix the colors to get new and exciting options. Remember not to wet the cotton wool too much. This will prevent it from giving off too much of the color when adding in a new layer of cotton wool.
 3. The next layer of cotton wool is put on top of the colored layer and a new color is used for this layer.
 4. Optionally, glitter can be added in between layers.
 5. At least three layers are recommended for the students to notice the different structures.

Background Material/Knowledge:

For inspiration for the looks of the nebulae, an abundance of images of nebulae can be found on NASA's website.