

SCIENCE CLUB ACTIVITIES

THURSDAY, 20TH OF MAY

1. ASTRONOMICAL MEASUREMENTS.

OBJECTIVE 1: Carry out a joint experience that shows us that the Earth is not flat. It may seem like a no-brainer in the times we are in, but in this day and age there's still a trend for certain groups of people to think that the Earth is flat. Can you believe it?

To show that this is not the case, we are going to carry out a SIMULTANEOUS MEASUREMENT OF THE SHADOW OF A LONG STICK (WE WILL CALL "OUR WITNESS") in our five countries simultaneously.

With this activity two objectives will be achieved, just with a simple measurement with very easy common object you can easily find at home, but DON'T FORGET that we depend on the sun, it must be shining in the 5 countries at the same time. If it is cloudy, we won't be able to do it there.

All participants will join the videoconference and they will carry out a totally synchronous measurement of the shadow of "our witness" that each member will build with the same exact dimensions.

OBJECTIVE 2: This same material will be used to jointly measure the radius of the Earth by Eratosthenes Method, which is more than 2000 years old. In this case, we will need to carry out a measurement in each country of the shadow of "our witness", but at a very specific time (Solar zenith). The sharing of the data will allow us to calculate the radius of the Earth with a very simple calculation.

REQUIRED MATERIALS: each participant will need to make his or her own "witness" with the following characteristics. The easiest way to get it is with a tripod that can be adjusted to the suitable height, but you can use one of those dustpan that we usually have at home (at least in Spain we use this type). Have a look at the picture. The height of the stick or tripod must be 80cm (same for everyone, don't forget). You will also need something to measure, a measuring tape or tape measure



The Spanish team will build a model to simulate “flat earth” and calculate the Earth’s radius. As soon as we have it, we’ll send a picture in case you want to do it too.

2. The 1001 uses of bleach: T-shirts “TIE DYE”

Bleach is one of those substances that have been present in our lives and to which we do not pay attention at all. We all have this product at home and it is used for different things such as a cleaning product because of its disinfectant power, to make water drinkable (only for experts) or to bleach clothes.

The bleach that we can find in our house is a solution of water and 5% hypochlorite (ClO⁻) This solution has an antibacterial function, since it attacks the cell walls of the microorganisms. For this reason, it has been used against diseases of bacterial origin, often transmitted through water, such as cholera. Nowadays, we all use it against CORONA VIRUS.

It is also a powerful antioxidant: the colour is produced because while light falls on the material, the electrons of the atoms of that object absorb a little of its energy and return the light without that fraction of energy. The bounced light is now coloured. Since bleach absorbs electrons, the fabric bounces off all visible radiation and appears white to our eyes. That is the explanation of our next activity.

¿Qué necesitaremos? WHAT DO WE NEED?

1 A big container, like the one in the picture



1 A plain coloured T-shirt (Any colour except a white one)



Elastic bands



Bleach (1 glass approximately)



Running water



latex gloves



A fabric marker



With these materials we will fade our t-shirts, giving each one its own personal touch and checking the effects of bleach on coloured fabrics. **Finally, when the t-shirt is completely dry, each participant must write on their t-shirt in a visible part, the name of his or her school, the Project name and "ERASMUS +" somewhere on it, YOU CHOOSE!!!**

DON'T FORGET TO TAKE A PICTURE AND UPLOAD IT TO THE ACTIVITY PADLET!!!

