

UV radiation: friend or foe?

School: none
Teacher: NUCLIO
No of students participated: Teacher's choice
Subject domain: Astronomy, Biology, Environmental Education, Physics

Contact info

Feel

Dear explorer!

This project is about the relation between UV radiation and the human body. You will learn many different things like what the sun is, light, different types of light and UV radiation. However, you will also dive deep into your community to understand what they know about this topic and if they are aware of the most important things related to UV radiation. Along the way you will be able to collaborate and communicate with colleagues from other places of the world and learn from them as well as help them with your own ideas.

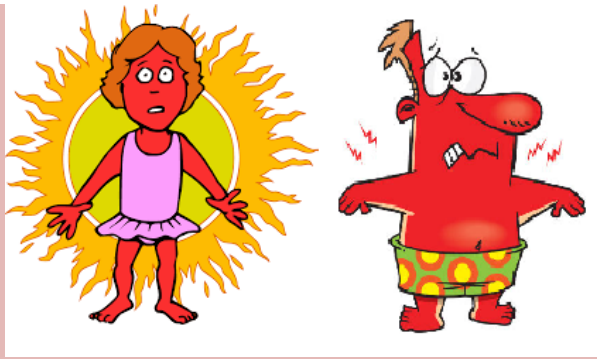
You will begin by learning about the topic and exploring it in detail through some fun activities. After this, you will make a research in your town and in your community. After you are completely aware of the topic and the level of knowledge of your community about it you will go to the "imagine" phase and discover possible solutions to increase the level of awareness of your community and promote a safer environment for everyone. Then you will take these solutions and create something for your community, where you apply or promote the implementation of your solutions. After this you will share your work with your community and other communities of the world.

In this platform is where you will register all the details of your project. When you finish it, your project will be online and available for anyone to see. For this reason, you will want to make sure that anyone can understand what you learned, what you did, why you did it and how you did it. Make sure you let everyone know how brilliant and creative you are. Don't leave anything out!

Introducing the topic

What would happen if you spent an afternoon in the beach wearing no clothes and no sunscreen?

Maybe this would happen?



Did you ever get a sunburn? Discover how many of your colleagues have already got a sunburn and write it in your project.

Do you know:

What causes sunburns? Are sunburns the same as a burn you get from touching something hot?

Here are some activities you can make to learn more about the topic and where you can find the answers to these questions:

1. [Discovering the Sun](#) (Astronomy) - Learn about what the sun is, its size and its place in our Universe.
2. [Humans and the Sun](#) (Biology and physics) - What does the sun give us and how important is it for our life? Discover about light, its different properties and how different animals see it
3. [UV light and the human body](#) (Biology, health) - Learn if UV is a good or bad in our lives and what is the difference between a sunburn and a burn you get from touching something hot.

What have you learned? Write it down so that others can learn the same things as you did when reading your project.

Add to your project a table (like the one below) to list the benefits and dangers of UV light you have learned. Make a web search to add more dangers and benefits that you might not have learned yet.

Benefits of UV light	Dangers of UV light

After you finish all your conclusions, move on the “imagine” phase of this activity.

Imagine

So, now that you know a lot more about the sun, UV and the health-related issues it brings, do you want to make a research about UV rays where you live and in other places of the world?



We can begin with 2 questions (but you can add more questions to your research):

1. ***Are UV levels the same throughout the day and across the globe?***
2. ***Are people in your community aware of the dangers and benefits of UV radiation?***

Write down your questions and your hypothesis.

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OK, let's see if your hypothesis are correct:

[In this globallab project](#) you can use a protocol to measure the UV levels in your town as well as to study the level of awareness of your family. This platform will allow you to collect the same data your colleagues in other places of the world are collecting and then compare the results and collaborate with other schools. So, once you are using collecting this data, please make sure you use the "discussion" to communicate with other students.

Where curiosity rules!



First you have to register:

- Use a code name - ask your teacher to help you decide on one.
- Don't use any picture that shows who you are.
- Read all the parts of the project very carefully and make sure you understand all the questions before you start the project.
- Begin by reading introduction and then go to "investigation page".
- Read the protocol carefully and then go to "report form" to add your answers.
- If necessary, print the protocol and keep it with you at all times.
- When you finish go to "findings" to see all the answers, including yours.
- Go to "discussion" to communicate with the other students about your results

Return to this page when you finish!

You can now analyse your data using graphs and tables. Take pictures or make "print screens" of these graphics and tables and add them to your project.

So, what are your conclusions.

1. **Are UV levels the same throughout the day and across the globe?**
2. **Are people in your community aware of the dangers of UV radiation?**

Were your hypothesis correct? If not, what made you change your mind? Write your new answers and conclusions with valid arguments based on your data.

Now, what a great job you have done so far!

So now that you know so much about the benefits and the dangers of UV, you know that it is important to protect your skin when the UV levels are dangerous but to let your skin receive the radiation when the UV levels are safe. Receiving radiation in your skin is simple, you just put your skin out and in the sun. But protecting it from UV dangers is a bit more complex than that. We can be exposed to UV dangers in so many different activities and we need to know different ways of protecting ourselves, according to our situation.

Considering this, it's time to start investigating how we can protect ourselves throughout the day.

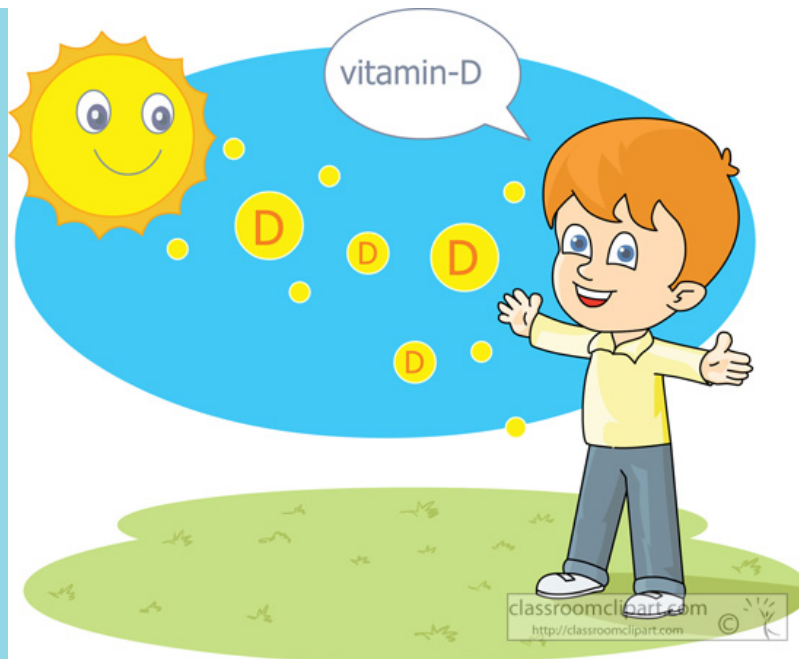
[Click on this cool Inquiry activity to explore this topic](#)

This activity is composed of 5 different phases. The first two are basically the same that you have already done, and the last is what you are going to do here next. You can explore the whole activity if you want, but if you need to save time, you can focus on the two following phases:

- How can we protect our Skin
- Conclusion

Make sure you take pictures of all the experiments you make, while exploring the Inquiry activity and add them to your project. When you finish, write down in your project what were your questions, your hypotheses, which experiments you made, which variables you considered and your conclusions.

When you finish, move on the "create" phase of your project



So, considering this information and all your research so far, what does your community need, in relation to awareness about UV light? Do they need to become more aware of the dangers? Or are they only unaware of the benefits? Maybe both?

What can you do to raise their awareness? Maybe you can partner with a sunscreen brand, or with a Health care centre to create an awareness campaign? Maybe you can organize several open sessions for your community, in your school and present them your knowledge in a fun way? Brainstorm with your colleagues and discuss with your teacher about what you can do.



Whatever you do, just remember to also think about what is important for your community and not only just for you. You want to make sure that you actually produce something that your community will see, understand and learn with.

Suggestion:

Using the UV sensitive beads your teacher got for this activity, you can create bracelets, necklaces, key holders, etc for you, your family and even for your community as an addition to your awareness strategy. You can create a whole awareness raising community fair covering different topics, including the UV and health (or just related to UV and health) and raise funds for a project you and your colleagues want to make with your school by selling the so useful UV bead objects, making sure

that people also receive a coloured scale for reference. With these objects people can always be aware of the UV radiation and know when it's safe to be at the sun and when it's not.



Make sure that you do create something like this for yourself and for your family.

Share

Now that you have created something for the community, it is time to share it!

You can share it in a form of a community fair, where the people that visit find the opportunity to make experiments, just like you did. If you are doing it indoors you can get an UV lantern and use it for the people to test the different protections in the beads.



Alternatively, you can make this project a station of a science trail or a full science trail if you and your colleagues have enough material for that. To learn more about science trails and how to create your school's science trail [click here](#)

A science trail is a set of different physical stations where community members, tourists and other visitors will be able to learn about your work and gain awareness, promoting development, awareness and sustainability in the heart of the community.

A station of a science trail is a physical stop where the visitor goes through an interactive activity/game that will serve the following purposes:

- Introduce the topic (usually through a game, quiz, fun experiment, etc.)
- Raise awareness to the problem (a video, another game, etc.)
- Present the solutions and how they can be applied

Considering this, it is important to establish from the beginning what type of stations the science trail will contain:

Different types of stations can be planned:

- Identify the local stakeholders and authorities that are directly related to your topic. Make sure they are aware of your work and try to get them involved as much as possible.
- Talk to local experts. Discuss and take interviews to add in your project.
- When working on your project keep record of everything you do and make as much footage as possible. Images and videos sometimes speak much louder than words.
- Pay attention to your presentation and know your audience. Make sure your stations are interesting

so that people will want to come and check them out.

- Apart from selecting the ideal spot for your stations, also think about local events you can participate in.

The most important thing is that you create something that suits you, your school and especially, your community. Make sure that, whatever you do, it is heard and seen by your community. Do your own design thinking with your community to discover which is the best way to reach your people.

Make sure you use all the means possible to disseminate your work!

Good luck and congratulations!

