



SILVER AWARD

TESTING SUNCREAMS



Typically 30 hours of project work
Recommended for 14-16 year olds



Practical
project

Investigate the effectiveness
of suncreams and sunblocks.

#chemistry

#health

#outdoors



HOW TO RUN CREST USING THIS ACTIVITY

Entering your project without a teacher or facilitator? No problem! You can enter your work yourself by following this link: www.crestawards.org/sign-in

Looking for some support? Find a mentor by contacting your local STEM Ambassador hub: <https://www.stem.org.uk/stem-ambassadors/local-stem-ambassador-hubs>

To use their project to achieve a CREST Silver Award your students will need to:

- **Develop and lead the project**
- **Complete a minimum of 30 hours of project work**
- **Consider the broader impact of their project and demonstrate an innovative approach**
- **Write a project report or portfolio of evidence**
- **Reflect on their work during the project using a student profile form**

Preparation

Ready to get going with CREST? Sign up for a CREST account here: www.crestawards.org/sign-in

Create a new Silver Award project with the name(s) of the student(s) and the title of the project. If you don't have the details yet, you can fill these in later!

Run the project

We have some super handy workbooks and profiles for your students to use when running a CREST Award. You can download these when you create your CREST account by following the link above.

Encourage your students to use the Silver student guide to plan and carry out their project. Each student involved in the project should complete their own profile form.

You don't want all their good work to go to waste, so be sure they keep a record of all their amazing progress. Keeping a regular project diary will save them precious time when writing their final project report.

Make sure you consider safety and risks!

Reflection

So, your students have been hard at work and completed their CREST project, but don't let this be the end of their learning. At the end of the project, each student should complete a Gold profile form and communicate their project. This is a chance for them to reflect on all the interesting things they've learnt and the invaluable skills they have used.

Students working in a group can either submit a joint report or separate reports, but they must each complete a profile form.

Use the CREST criteria on the profile form to help the students check that they have included everything in their report.

Enter your project for a CREST Gold Award

Hard work deserves a reward! Celebrate and certify your student's achievements by entering their project for a CREST Silver Award. Simply:

Log in to your CREST account at www.crestawards.org/sign-in

Select your project and upload the profile form per student, project report and other evidence, such as pictures and diagrams.

Finally, complete the delivery and payment details for assessment and to order your snazzy certificates.

Congratulations on submitting for CREST Silver!

What next?

Is university on the horizon for your students? They can use their project to help demonstrate their newly found STEM skills and knowledge in UCAS personal statements.

The scientific discovery doesn't need to end here. Students can have a go at the next level up - CREST Gold.

Don't keep all the fun to yourselves, encourage others to take part in CREST projects and share the wonder of science. For free ideas on how to get started, see www.crestawards.org

STUDENT BRIEF

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Testing suncreams

In this project, you will investigate how well different sun creams and sun blocks protect against UV radiation.

Getting Started

You should start this project with some research, try to find out:

Information about the electromagnetic spectrum and radiation from the sun.

Why UV radiation is damaging to people's skin.

What different sun protection factors (SPFs) mean on sun cream and sun block.

Different ways of measuring radiation from the sun. You then need to develop a method to work out how much of the sun's radiation is blocked by a variety of sun creams and sun blocks.

Taking readings: Set up your apparatus to test the effectiveness of different sun creams and sun blocks.

Remember, you will need to keep non-variables constant. That means you'll need to think about weather conditions when testing different products - for example, will the results be comparable if you test different sun creams on different days? You'll also need to make sure you use the same amount of each type of sun cream/sun block.

Decide how many times you should conduct the experiment to gain a reasonable number of results.

Decide if there are any other readings you want to take. For example, you may want to see if there is a relationship between UV and temperature. You should also take note of weather conditions. What is the effect of the time of day, or cloud cover?

The results: Decide on a good way of displaying your results. Plotting temperature and radiation readings on the same graph will allow you to easily spot any relationships.

Things to think about

There are different types of UV sensor available - you might like to compare them to see which is most effective.

Useful Resources

You might also like to visit local universities or other places with suitable equipment to find out if there are more accurate ways of measuring UV. A weather centre, perhaps from the closest regional television station, may be able to help.



STUDENT BRIEF

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Health and Safety

A science project work is both dynamic and exciting but can also carry some risk. To avoid any accidents, make sure you stick to the following health and safety guidelines before getting started:

- find out if any of the materials, equipment or methods are hazardous;
- assess the risks (think about what could go wrong and how serious it might be);
- decide what you need to do to reduce any risks (such as wearing personal protective equipment, knowing how to deal with emergencies and so on);
- make sure your teacher agrees with your plan and risk assessment.

Although you have researched the effect of radiation on the skin, you shouldn't use actual people to conduct experiments. Make sure you don't expose yourself to significant risk if you are working in strong sunlight..

Remember!

Science isn't just about data. The most successful projects will demonstrate good communication skills and show original ideas that address a real-world problem.

Look at the world around you and consider all the innovative ways that you could address the challenge. Even if things go wrong, use this to show what you have learned. Don't forget to use the student profile form to help structure your project.