



GOLD AWARD

COMPARE SUNCREAMS



Typically 70 hours of project work
Recommended for 16-18 year olds



Practical
project

Test the effectiveness of
different suncreams.

#biology
#chemistry
#health



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: www.stem.org.uk/stem-ambassadors/local-stem-ambassador-hubs

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

- **Develop and lead the project**
- **Complete a minimum of 70 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 Gold Award project with the name(s) of the student(s) and the title of their project. If you don't have all these details, you can fill them in later!

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.

Run the project

Encourage your students to use the Gold 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.

The students should spend at least 70 hours on the project in total.

Remember to 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 Gold 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 Gold!

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.

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

**GOLD
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Compare suncreams

In this project, you will measure the UV radiation to find out when the sun's UV rays are the strongest. You will then compare a variety of different sun creams and sun blocks by measuring how much UV radiation they stop.



Getting Started

Conduct some research into the dangers of over-exposure to the sun. Try to find ways of measuring UV radiation - find out if it's possible to measure UVA and UVB.

Measuring UV radiation: Once you've decided on a method for measuring UV radiation carry out experiments to see when the sun's UV rays are strongest. Try to conduct the experiments throughout a year, so you can compare the differences between the four seasons. Find out what the sun index is, and how it's affected by the time of year, time of day and the amount of cloud cover. During your testing, check the sun index on weather reports to see if your results correspond with those of the professionals.

Testing sun creams: You should choose a variety of different sun creams and sun blocks to test and determine how much UV radiation they stop.

Use a UV spectrophotometer to measure which parts of the electromagnetic spectrum are absorbed by different sun creams and sun blocks (you will need to visit a university to use a spectrophotometer).

Think about how to communicate your findings.

Things to think about

Think about which tests are more accurate and consider why this is.

Useful Resources

Contact a university to see if it has a UV detector you could use. It would be good if you could link up with a chemist working for a sun cream manufacturer or an analytical chemist in a university. They should know how sun creams are tested in industry.

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Health and Safety

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.

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.