**CREST AWARDS**

# THE EFFECT OF TREATMENTS ON HAIR

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

**Practical project**

Consider the impact of treatments on different types of hair.

**#chemistry**

**#biology**

**#hygiene**

# HOW TO RUN CREST USING THIS ACTIVITY

## 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

## The effect of treatments on hair

In this project you will be investigating hair to gain both qualitative and quantitative data. You will look at the appearance of hair and you will measure its strength.

GOLD AWARD

### Getting Started

You need to make sure you have a sufficient amount of different hair types (straight, curly, thick and thin for example) to give you meaningful results.

You also need a sufficient number of hairs from each hair type, and you will need to measure the thickness of your hair samples. When you test the untreated hair for strength it will break. Therefore, if you want to determine the effect of applying treatments, you will need to use a hair that is as similar as possible to the first- same type, length, diameter etc.

Pre-treatment: Look at the hair samples under a microscope and describe any characteristics. Decide on a decent method for testing strength. Now test the strength of your hair samples to gain a value before applying any treatment.

Applying the treatments: It's up to you what sorts of treatments you want to test. Some suggestions are, curling or straightening hair, blow-drying hair or using hairspray.

Post-treatment: When the treatment has been applied, you need to look at them again under the microscope. Describe any changes you see. Work out if the treatments have done anything to the hair samples that you believe may decrease its strength. Explain why it's important to look at the full length of the hair. Make an educated guess where you think the hair will break. You then need to test the strength of the treated hair. Has it decreased or increased? Did it break where you thought it would break?

### Things to think about

Remember to keep all non-variables constant when applying treatments. For example, if you're testing different shampoos you'll need to keep the temperature of the water, the amount of shampoo and the method of drying constant.

### Useful Resources

You will need to link up with mentors from industry or local further/higher education colleges for a couple of reasons. Firstly, it would be useful to use a powerful microscope to look at your hair samples. Secondly, you will need to investigate industrial methods for testing strength. You'll have to work out what sort of strength you'll be testing and adapt a procedure accordingly. You might also want to visit a hairdresser and find out what sort of treatments they recommend for particular hair types and why.

**www.crestawards.org**

# STUDENT BRIEF

**GOLD AWARD**

### 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.

**Are there any hygiene issues you need to consider?**

### 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.