CREST AWARDS

SILVER AWARD

ARE SOME JEANS TOUGHER?

30H

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

Design & make project

Test the strength of different pairs of jeans.

#textiles
#materials
#clothes

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

SILVER AWARD

Are some jeans tougher than others?

Which properties do you think are most important for a pair of jeans? Do you buy jeans for their looks, or because you think they'll last a long time? In this project you will test the strength of different pairs of jeans to investigate if some jeans are tougher than others.

Getting started

To start you will need to work out which properties you want to test. This will involve some research into properties of materials, particularly strength.

You should take a number of same-sized pieces of denim from each pair of jeans you are comparing. That way you can do the same tests more than once, giving you more accurate results. The size of the piece of denim may vary depending on which test you are going to carry out. For example, if you test strength, you may want thin strips of denim. You'll also have to measure the thickness of the denim. This may make a notable difference to your results. Remember – don't cut up someone's favourite pair of jeans!

Testing the samples: As mentioned earlier, it's up to you which properties you want to test – but you should test more than one property. You will need to design an experiment to test each type of property. For example, you might measure the strength of the seams by hanging weights from your denim samples until they break.

Make sure you conduct all of the tests on all of the denim samples. Think of a good way to show the results from each test.

Things to think about

You need to think about the different pairs of jeans you want to test. Do you want to test jeans that are different prices, colours or brands? It's also worth noting the age of the jeans. You will, more than likely, use old pairs of jeans so they may already be a bit worn. Try to use the bits that are least worn.

Useful resources

You could test the strength of seams in a pair of denim jeans, the tear resistance of denim, or you could try to work out how easily denim wears down by rubbing it on a rough surface. Contact a jean manufacturer to ask if you can get some free denim samples and learn more about how they are made.

SILVER AWARD

Health and safety

A science project 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.

If you use masses to test the strength of your denim samples, make sure that you are at a safe distance when the denim gives way.

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.