



SILVER AWARD

MAKE YOUR OWN TEA BAG



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



Design & make
project

Think about what makes the
ideal tea bag.

#chemistry

#materials

#food



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

Make your own tea bag

You can buy teabags in all sorts of shapes and sizes, in this project you will design the ideal teabag. You will need to think about what your teabag should be made from, what shape it should be and how much tea it should contain.

Getting Started

Start by having a look around the shops at all the different types of tea bags that are available. Carry out some research into how tea bags are made. Research what happens between when tea leaves are picked, and when tea bags land on our supermarket shelves. Find out if there are different processes for different types of tea.

Designing your bag: Decide how much tea should be in each bag. You could do this by taking the tea from different tea bags and working out the average amount of tea.

The material: You need to think about what properties the material should have. You may want to design some tests to check the materials' suitability.

For example: You need something porous so the tea will steep in the water (you could try to actually measure porosity).

It shouldn't disintegrate or break easily when wet.

It should be non-toxic.

A couple of suitable examples are muslin and cotton. Think about how you will cut and join your materials. You may want to design some tests to check your joining methods work.

The tea tests: You need to think about what properties the material should have. You may want to design some tests to check the materials' suitability. For example:

Make sure you make the tea bags the same size and shape. A simple design will be best at this stage - you don't want to go sewing fancy shaped-designs when you're just checking the material!

Things to think about

Make sure you use the same amount and temperature of water.

Decide whether or not you will stir the tea.

How you will decide when the tea has brewed - for example, will you wait until it turns a certain colour?

Make sure you use the same type and amount of tea leaf in each tea bag - you could buy a packet of loose tea to make sure you're using the same type each time.

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.

The shape: The range of shapes you test is up to you. You could test the already available types (square, round, pyramid, for example) or you could make totally new designs. Think about the size of the tea bag - should it be large, so the tea moves around freely inside, or should it be small, so the tea is packed tightly within? When you've designed a few bag shapes, about five should be enough, make the tea bags using your chosen material. Then carry out the same tests as when you were testing the materials. Combine your results and you should have the perfect quick brew tea bag!



STUDENT BRIEF

SILVER
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.

Remember, you should never carry out tasting experiments in a laboratory or using lab equipment.

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.