



SILVER AWARD

THE ULTIMATE PIZZA BOX



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



Design & make
project

Design and make your own
pizza box and test its
strength.

#engineering

#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

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AWARD**

The ultimate pizza box

You've been asked by a fast food company to design a new take away pizza box, and to make and test a prototype. The pizza box should keep a 12-inch pizza from getting cold and damaged when it's being delivered. It should be easy to manufacture, store and dispose of safely.

Getting started

Do some research into pizza boxes, you could also visit a few pizza places and check out what their boxes are like. Find out what templates are usually used to make pizza boxes - you could simply unfold a pizza box to see what it looks like.

Make a template to test

You need to design the template for your pizza box. You could start by making scale models from paper, just to check your ideas work.

Do some research into properties of materials. Perhaps you could link up with a local higher/further education college to ask about testing techniques and use some of their equipment.

The material used is important - carry out some tests on the materials you're thinking of using. It's up to you what properties you think are most important then design the relevant tests. You could try and use something other than cardboard, but remember to think about all the things listed in the design brief - you may find a material that keeps pizza warm for longer, but it might be far too expensive.

Here are some suggestions for possible tests:

Design a test to see which materials keep a pizza the hottest.

Design a test to see which materials will be able to protect a pizza from the sorts of bumps it might experience.

When you've decided on the materials, you should set about making the pizza box. When the box has been made, you could carry out more tests on the final product.

Things to think about

How will you keep your tests fair?

How will you test

Which materials are safe to use in food packaging?

Is it safe to add colours and lamination on the box?

Can the materials easily be made into the right shape?

How would the manufacturing process change if you had to make your pizza boxes in batches of 100?

Useful resources



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.

Remember, any use of tools needs to be well supervised, possibly in a workshop (depending on the tools).

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.