CREST AWARDS

GOLD AWARD

A BALANCED DIET

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

Practical project

Investigate nutritional disorders and design a menu for someone with one.

#biology
#health
#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: **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 AWARD

A balanced diet

The aim of this project is to design a menu for somebody with a nutritional disorder. The project is split into two main sections. The first is very much research-based, finding out about a nutritional disorder. The second involves analytical chemistry and biology, as you will conduct food tests. Finally, you will collate the information and data you have collected and suggest two menus for two days for somebody with a nutritional disorder.

Getting Started

First things first, you should carry out some research into a nutritional disorder of your choosing. Some examples to choose from include:

- Diabetes
- Coeliac disease
- Crohn's disease
- High blood pressure
- Anaemia

You should produce a promotional poster or leaflet telling people about the condition. You should include information about diagnosis, symptoms, recommendations for treatment (including modification to diet) and which people are most likely affected. Create the poster/leaflet for the target audience.

Menu design: Your second task is to produce two menus for two days. Each day should include three meals - breakfast, lunch and dinner - as well as drinks and any snack breaks you feel appropriate. The first menu should be for an average working day - either at work or at school/college. The second should be for the weekend.

Each menu should be designed to meet the sufferer's total recommended daily allowance (RDA) for major food types. Instructions should also be given about how to make the food on the menu and when they should make the food - for example, they may need to take lunch to work with them. You should also include any specific ways foods should be cooked, or specific ingredients that should be used - for example, low fat, low salt etc.

Testing food: A lot of the ingredients you use will have information on the packaging. This, in most cases, should tell you all you need to know about its nutritional value. However, for this project you should also carry out your own food tests to check such information. Not only can you verify the label's claims, but this will also allow you to test any homemade products - for example, if you use home grown vegetables, or home baked bread.

Things to think about

It's up to you to decide which types of food test you want to carry out. You will have to design the methods yourself too. Here are three suggestions to get you started:

- Energy content - use a bomb calorimeter - this is how it's done in industry.
- Unsaturation of fats - you could use an iodine titration.
- Determine quantities of minerals and vitamins.

Useful Resources

You could try to link up with dieticians from local hospitals to help with your project.

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.

Make sure you have carried out a risk assessment for these tests.

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.