



BRONZE AWARD

WHAT'S IN A FOOD?



Typically 10 hours of project work
Recommended for 11-14 year olds



**Practical
project**

Test a range of foods to find out about the nutrients they contain.

#biology

#digestion

#food



HOW TO RUN CREST USING THIS ACTIVITY

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 Bronze Award your students will need to:

- **Complete a minimum of 10 hours of project work**
- **Consider the broader impact of their project and demonstrate an innovative approach**
- **Complete the project workbook or short report in another medium**
- **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 Bronze Award project with the name(s) of the student(s) and the title of their project. If you don't have all the details, 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 workbook or profile to plan and carry out their project, keeping a record of all their amazing progress.

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. They should now fill in any remaining sections of their workbook. This is a chance for them to reflect on all the interesting things they've learnt and the invaluable skills they have used.

Enter your project for a CREST Bronze Award

Hard work deserves a reward! Celebrate and certify your student's achievements by entering their project for a CREST Bronze Award. Simply:

Log in to your CREST account at www.crestawards.org/sign-in

Select the project and upload a sample of the students' workbooks or other project evidence.

Check the participating students have met each of the criteria on the teacher assessment page.

Finally, complete the delivery and payment details to order your snazzy certificates.

Congratulations on completing CREST Bronze!

What next?

The scientific discovery doesn't need to end here. Students can have a go at the next level up - CREST Silver.

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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What's in a food?

In this project, you will test a range of foods to find out if they contain protein, fat, reducing sugar or starch. You will then do an experiment to work out how much energy is in each of the foods.

Getting started

You should start this project by selecting different types of foods to test – about five should be enough.

Carry out an experiment to find out how much energy is in each type of food. To do this you have to burn the food and see how much it heats up water. You should ask your teacher how to set this experiment up. You'll need a Bunsen burner, a clamp stand, a boiling tube, some water, a thermometer and something to hold the food over the flame (a small non-luminous flame should be okay). Once the food starts to burn take it away from the flame and hold it under the boiling tube of water.

When the flame goes out you should re-light the food - you should keep doing this until it no longer lights. Try to do this quickly so that the water in the boiling tube does not cool down while the food is being re-lit.

For each type of food, you should have a temperature rise. Find out the temperature change per gram for each food.

You could try some of the tests listed on the right. These will tell you if the food has any protein, fat, reducing sugar (such as glucose) and starch.

You will need to ask your group leader how to do the food tests – the tests won't tell you how much of each thing is in the food, just whether or not there is any.

Create a table to display the results of all your food tests.

Things to think about

How will you keep it a fair test?

How much water will you use for each experiment?

Will you stir the water as it heats up, if so, how will you do this?

How will you record the change in temperature? Remember, the starting temperature of the water may be different.

How could you calculate the temperature rise per gram?

Useful resources

Suitable foods include: cornflakes, rice, carrot, potato, apple, raisin, bread, pasta, crisps

Ask your group leader for help running the following tests:

Protein content – Biuret test

Fat content – Emulsion test

Reducing sugar content – Benedict's test

Starch content – Iodine test.



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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.

Be aware that some people are allergic to certain foods.

Be aware hazardous chemicals are used in these tests.

See CLEAPSS Student Safety Sheets for more information.

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.