



BRONZE AWARD

WHAT MAKES BREAD RISE?



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



**Practical
project**

Investigate different bread recipes and design an experiment to get the perfect rise.

#food

#microbiology

#engineering



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

STUDENT BRIEF

**BRONZE
AWARD**



What makes bread rise?

Different types of flour are used to make different types of bread. Most flours are made from grinding wheat. There are also other types of flour, which are made from other ingredients such as rice, potatoes and soya. Some people can't eat bread because they're allergic to wheat or gluten which is in wheat. So they have to use alternatives, for example gluten-free flour. In this project, you're going to make bread dough using some different types of flour. You'll compare how well the bread rises.

Getting Started

Making bread dough: You'll need flour, water and yeast to make bread dough. Make some small quantities of dough using each of your different flours.

Make sure you use the same quantity of ingredients for each dough.

Knead the bread dough. Dough is kneaded to trap air in it - remember, to get accurate results you should knead each dough for the same length of time.

Push each bread dough into the bottom of an empty boiling tube - the boiling tubes should all be the same size. Make a mark on the side of each boiling tube to show where the dough comes up to and label it.

Leave the boiling tubes at a temperature of 35 °C, the dough needs to be at this temperature to rise.

Leave your dough for 30 minutes then look at your boiling tubes again. Mark where the level of the dough is in the tube.

The results: Compare your different bread doughs and measure how much they've risen by.

If you have time, try making some bread using different yeast.

You could look at:

How well the bread has risen after baking?

How do the different breads look?

How do they smell?

Compare your different breads again when they are cool.

Things to think about

Which type of flour was in the dough that rose the most?

Which type of flour was in the dough that rose the least?

If you make the dough into bread:

What do the loaves you have made look like inside? Are there lots of holes?

Are they hard or soft?

How else could you compare the loaves?

Useful Resources

Visit a supermarket and look at the different types of flour available. If you read the packets some will be suitable for bread-making. Choose a range of wheat flours and non-wheat flours (for example gluten-free or potato flour) to make bread dough with.

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Health and Safety

A 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.

Do NOT eat breads if they have been made in a science laboratory or using science equipment. For tasting/eating experiments you must use a food technology room and carefully follow hygienic procedures.

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.