

Yeast Races (30 mins)

Curriculum Links (KS2):

Science: Working scientifically; Living things and their habitats

English: Reading and Comprehension

PSHE: Core Theme 1 - Health and Wellbeing

Design and technology: Cooking and nutrition

Mathematics: Comparing measurements

Learning Objectives for KS2:

All students will:

- understand that some microbes can keep us healthy.

Most students will:


- understand that some microbes can be put to good use.

Some students will:

- know that microbes grow at different rates depending on their environments.

Risk Assessment:

In the event of an outbreak of infection you may need to modify this activity to ensure social distancing or other criteria according to your school's policy. Please email the e-Bug team at e-Bug@phe.gov.uk if you wish to discuss ideas or modifications to this activity that are needed to follow guidelines in your setting.



This activity is featured in the pack for KS2 but would be appropriate for community groups as well (Beat the Bugs). (There is a similar activity exploring [yogurt fermentation](#) in the KS3 packs). It highlights beneficial microbes that we use in the food industry. It involves using the useful fungus yeast to explain how bread dough rises through the process of fermentation. The yeast eats the sugars present in food and produces acids. These acids change the taste, smell and form of the food.

Before you begin you will need:

- Background and lesson plans from the “1.2 Useful microbes” in the KS2 pack or “Meet the Bugs” in the Beat the Bugs pack.
- Copies of worksheets or handouts for each participant
- “Yeast Races” recipe in KS2 and Beat the Bugs
- Flour, sugar, and dried yeast
- Tall glasses, graduated cylinders, or plastic cups
- Tape and marking pen for labelling

Click here to access the resources for this activity for [KS2](#) or [community groups](#) or a similar activity using [yogurt fermentation](#) in the KS3 packs.

Use the introduction in the lesson plan or discussion section to review the following with the class:

- How there are useful and harmful microbes.
- That microbes can help us digest food or turn it into other forms we enjoy such as yogurt, cheese and butter.
- That yeast is a fungus that eats sugars and produces acid and gas. This causes our bread to rise and changes its taste.

Use the following steps as a guide to implement this activity

- Prior to starting the activity make up a liquid yeast solution as outlined on the yeast packaging, with water and dried yeast. This may vary between different brands. If made too far in advance the yeast will start to ferment. NB: Do not add sugar until stated in the main activity.
- Divide the participants into groups and have each group label two cups A and B and put four dessert spoons of flour into each cup.
- Add the yeast solution to cup A and mix until it is the consistency of a thick milkshake. Do the same for cup B but use the yeast solution with sugar added.
- Pour 30 ml of the contents into the corresponding A and B graduated cylinder (or tall class with 30ml marking).
- Place both cylinders/glasses into a basin of hot water and use student worksheet 1 record the height of the dough every 5 minutes.

Video (1:21): [Yeast Races](#)

Use the plenary questions or discussion section to check understanding of the participants after the activity is completed. Then complete action plan (Beat the Bugs).