



BRONZE AWARD

WHO IS THE FITTEST IN YOUR CLASS?



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



Practical
project

Measure the baseline level of
fitness of a group of
volunteers.

#biology

#health

#sport



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

Who is the fittest in your class?

In this project, you will measure the baseline level of fitness of a group of volunteers by recording how long it takes for their pulse rate to return to normal after exercise.

Getting Started

To get started you should do some research, make sure you:

- Can explain what 'fit' and 'fitness' mean
- Know what a 'pulse rate' is and how you can measure it.

Secondly, you need to find a group of volunteers to test. You could try asking your class or a sports team.

Your task is to find out how fit they are by measuring their baseline level of fitness. Baseline level of fitness is the time it takes for someone's accelerated pulse rate to return to their resting pulse rate. Do some research on what a resting pulse rate is.

Raising the pulse: Make sure you do a fair test. There are lots of things that have to be kept the same. For example:

- Decide what sort of exercise everyone will do. It should get their pulse rates up, but not be too hard. Otherwise some people won't be able to do it! Some examples are running, sit ups or step ups.
- Everyone should do the same amount of exercise for the same length of time.
- Everyone should rest for the same period of time.
- You should take everyone's pulse in the same way. You should also think about whether or not you're going to test everyone at the same time. If you do, then you'll need some helpers to take everyone's pulse.
- Decide how many times you should do the test. Will once be enough?

Things to think about

You need to decide if you want to test:

- All girls, all boys, or a mixture of both
- People of the same age or different age groups.

Why not make some predictions about who will have the higher baseline level of fitness? For instance, if you have people from different sport teams, which team do you think will have better fitness levels?

Useful Resources

Why not ask your PE teacher to help with this project?

The results

You should record your pulse rate readings in a table, before and after exercise.

You should have a list of times next to everyone's name. These are the times it took for their accelerated pulse rates to return to their resting pulse rates. Make sure the times are given in the same unit (in other words, they should all be in seconds or minutes).

Put everyone in order of recovery time. The fittest people are the ones whose pulse rate returns to normal in the quickest time.

You could draw a bar chart to display your results.

Work out the average recovery time for the group of people you tested. You do this by adding all the times together, and dividing it by the number of people you tested. Ask your teacher if you need some help with this.

Was there a difference between boys and girls? Was there a relationship between recovery time and age?



STUDENT BRIEF

BRONZE 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 the exercise you choose can be done safely – for example, if using step ups make sure the step cannot overturn. Don't let it get competitive – some people might over-exercise.

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.