



Outline of games and workshops ran by The OR Society Teachers Resources and FAQs

Maths is used on almost a daily basis by everyone everywhere. In school, this is pretty obvious – we have maths lessons and so of course we use maths! But what happens when you're not at school? Do you realise maths is fundamental for rollercoasters to stay on course upside, or that your luggage at the airport needs maths to arrive in the right place?

We run workshops using fun, interactive and engaging games to show you how playing with Lego (and other great bits) can showcase the usefulness of maths and Operational Research (OR) in the real world. We run these workshops free of charge at enrichment events, STEM clubs and during school lessons - all we require is that a member of staff is present. Some of our most popular workshops are listed below.

OR is a 'signpost' career for young people who enjoy studying mathematics and problem solving but aren't sure how they might use these skills in the workplace. The examples and materials we provide (for free!) are designed to help students and teachers by providing some great examples of maths being used to help solve 'real-world' problems and present OR as an interesting and fulfilling career.

The workshops we run:

Game #1 - Play with Lego: In this session we want you to make a table and chairs out of Lego (but don't worry – we'll provide the Lego for you)! Maybe you want to make the tables with square blocks and the chairs with rectangle blocks. Or maybe you want to use all square bricks for the tables but different colours.

Game #2 - Play a board game: We'll be getting you to play our very own version of snakes and ladders! Maybe you'll become a mathematic comedian and move forward two spaces, or maybe you'll get caught up in traffic and move back one space. Who will reach the end of the career board game first?!

Game #3 - We're at the Theatre: You'll be organising the seating for a theatre company. Think of a large theatre with lots of rows of seats and then lots of audience members! You'll have to decide who sits where, if anyone sits by themselves, and what you'll do with people who book in a group. This then leads onto getting them thinking about the most efficient way to seat people and how to make the most of the resources / space available.

Game #4 – Making paper cups Firstly, we get students folding paper up, down and across to make paper cups. Then the challenge gets technical (and competitive!) - teams are timed building paper cups, and must organise the task into subtasks - such as folding or designing.

This leads onto thinking about efficiency and process improvement. What worked? What didn't? Let's time it and do it again! The students have a chance to make changes to their process before comparing the means, standard deviations and variances.

Game #5 - Cooking Bolognese: At some point, you might have to learn to cook for yourself! In this session, you'll be figuring out the logistics of how to make spaghetti Bolognese, how long the different steps take, and most importantly - if you've got time to make dinner as well as go to the cinema afterwards with friends! Can you cook, wash up and then eat - all before the cinema screening starts?

Game #6 – Theme Park Management. You're organising a school trip for your friends and your teacher at school. What time should the coach leave? Which ride should you go on first? Have a go at running a school trip and see if you can sort out all the logistics so you get to go on every ride!

Game #7 – Sports Matching. You're the sports captain of your school and you've got to allocate students to different teams. They all have their favourite sports and some of them are very good at certain sports. Can you allocate them in the best way to ensure your school wins the sports day?

Interactive exercises also available:

- Staff Costs – Linear Programming
- Paper rounds
- Maze Craze
- Booklets and Info



Questions? Comments? Want to book a workshop?

Email us at: education@theorsociety.com or visit the website: www.theorsociety.com



Frequently Asked Questions

1. How long do workshops last?

Most workshops last an hour to an hour and a half depending on the ability and age of the students. We recommend booking at least an hour and 15 minutes for every workshop with the exception of Game #2 (the board game) which can be completed in a minimum of an hour and the Theme Park Management which requires a minimum of 2 hours. If students are a low ability we have lots of supporting material to aid them; please be aware that it may take them longer to grasp concepts though and therefore additional time may be required.

2. What age range are the workshops for?

The workshops detailed above are all suitable for secondary school children. We have different versions of PPTs and games depending on the age / ability and we will direct you and provide you with more information when you book (if appropriate). Game #1 uses (basic) algebra and equations and therefore we would recommend doing this with classes in year 9 or above. On the other hand, the careers board has less traditional maths in and therefore is suitable for year 6 upwards. The making paper cups one can be adapted with or without using statistics – therefore it may be suitable for a year 8 or 9 class, but would work equally well for a year 10 or year 11 class to practice their statistics if the extension task is included.

3. What do we need to book?

We ask for you to fill in a booking form beforehand and then complete a feedback form afterwards. Note that we also require a member of staff (either teacher or teaching assistant etc) to be present for the entire duration. Our volunteers and members are working professionals; they are experts in their field, however they are not teachers! They are not trained to manage behaviour from students or safeguarding issues and therefore we ask for a teacher (or similar) to be present throughout. Most of the time the teachers really enjoy the sessions and join in!!

4. Is it really free?

The OR Society is a charity and professional body. We have a network of members who volunteer to give up their time and expertise to provide valuable input and run a session. Therefore, we do not charge for the session. However, if you are able to buy (or make) the volunteer (s) a cup of tea or coffee from a staff room or similar that would be much appreciated!

5. How much notice do you need to book?

We generally required a few months' notice where possible to sort out logistics and make arrangements. If you are flexible on dates this helps us enormously! However, we appreciate there may be a specific date or day you are after (for example a careers day or maths day) – if this is the case please provide as much notice as possible.