

OR in Education Volunteer Handbook

“Just wanted to say a big thank you for being with us today. We had some really good feedback from the students that were involved. I was wondering if we could pencil you in for the same workshop next year?”

Welcome

Welcome to the OR in Education (ORiE) outreach programme.

As an ORiE volunteer you are giving your time, energy and skills to support our outreach efforts. We appreciate everything you do to tell young people about OR and the potential it holds for them, we firmly believe that you make a huge difference to students interested in analytical careers.

This handbook aims to answer your questions about volunteering with ORiE and give you all of the information you need to volunteer with confidence. If you have any queries, your contact at The OR Society will be the Education Manager.

Volunteering with ORiE

Our Aims

Volunteers are essential to the ORiE outreach programme. The OR in Education programme has a goal of ensuring every student knows what OR is, to this end we attend careers fairs, give careers talks, run workshops in schools and attend science fairs and teacher conferences. All of this would be impossible without ORiE volunteers, who give up their time to help students understand what OR is, how it is used in everyday life, and what their career opportunities in OR are.

Who is this policy for?

Volunteers support ORiE by giving their time to attend events on behalf of The OR Society. The volunteering relationship is based on trust and does not involve the obligations associated with employment. No payment, other than the reimbursement of expenses (in line with our expenses policy) is made by The OR Society to volunteers.

This policy is intended for ORiE volunteers. It outlines the principles on which the relationship between volunteers and the charity is based and provides some information on volunteering with us.

Recruitment

The variety of skills and experience that volunteers can bring to ORiE is one of the programme's strongest assets. Anyone with experience studying or working in the field of OR can be a valuable member of our community. ORiE volunteers attending events where children under the age of 18 will be present will be expected to consent to an Enhanced DBS check and complete an online safeguarding training module.

Equal opportunities and diversity

The OR Society is committed to respecting equality and diversity in all aspects of our work. We value the contributions of those with diverse backgrounds and experiences and do not tolerate discrimination on grounds of age, gender, race, disability, religious belief or sexual orientation.

Responsibilities and expectations

We want you to have a fantastic time as an ORiE volunteer, so we take our responsibilities towards you seriously. As an ORiE volunteer you will be a representative of The OR Society and as such, we ask that you act appropriately.

The OR Society's responsibilities

- To act in accordance with our values; to behave in a rigorous, inclusive, proactive and supportive manner.
- To offer equal opportunities to everyone who wants to volunteer.
- To offer appropriate training and support for your role, including access to the Education Manager who will support and advise you.
- To celebrate success and recognise loyalty and dedication.

- To respect all our volunteers and encourage two-way communication.
- To provide information about ORiE outreach work and all relevant policies.
- To reimburse expenses in line with our expenses policy.
- To make necessary arrangements to ensure your health, safety and welfare as a volunteer.
- To encourage a positive and friendly atmosphere.

Our expectations of you as a volunteer

- To behave in a rigorous, inclusive, proactive and supportive manner, in accordance with our values.
- To aim for high standards of reliability and quality in your volunteering.
- To support, respect and adhere to our policies and guidelines, including all aspects of safeguarding, health and safety and equal opportunities.
- To let the Education Manager know if you have any problems so that we can find a solution together.
- To let the Education Manager know if you become unwell or are no longer able to volunteer at an event. Where possible, please give at least 24 hours' notice.
- To have the best possible experience by getting involved and enjoying yourself.

"Our team worked together really well and got along. In turn we were at ease hosting and talking to the children with each other's help. Talking with the children went well. The children enjoyed the puzzles and games".

Time commitment

The OR Society understands that your time is valuable. As such, you are welcome to volunteer as little or as often as you like.

What do ORiE volunteers do?

Volunteers for OR in Education (ORiE) do a mixture of things. The most common activities we need volunteers for are giving careers talks, attending careers fairs, exhibiting at science fairs and running ORiE workshops.

Careers Talks

This involves talking to a group of college or university students about your experience. You are likely to have somewhere between 10-40 minutes to talk about your job and what you enjoy about it.

Careers talks are requested by schools and universities. They may be to one class or to a year group in an assembly. How you structure and deliver your talk is entirely up to you. Depending on the amount of time you have, you may want to allow for 5 – 10 minutes at the end of your talk for questions. The ages of the students and the amount of time you have will influence how much detail you will be able to go into about OR and your career.

Careers talks are also a good opportunity to promote your employer as they focus on sharing personal experiences. If you've got a great employer in the field of OR, we'd love it if you told students about them.

We have an ORiE branded slide deck with some standard slides on OR. If you would like to prepare a presentation, we will share this slide deck with you and will let you know whether the

technology requirements of the venue are (whether you need to bring a laptop or a memory stick etc.). We will also send a box of leaflets and freebies to the venue that you can give out.

Careers Fairs

These are usually at a local school or university and involve looking after a stand. This can involve chatting to interested students about what you do, where you work and how you got into OR.

We will courier a box of materials (a tablecloth, banners, leaflets and freebies) to the venue for you ahead of the event so you have everything you need to stand out and make a good impression. Please arrive with enough time to set up the stand before the careers fair starts.

Once the careers fair starts, your main role will be to talk to students and encourage them to think about careers in OR and take away some of our leaflets. Please share your personal experiences in OR and encourage students to think about a career with your company, if relevant.

"The event went well, with a good level of interest in OR, and a few of the parents event stated that they wished they'd known about OR as a career option when they were younger!"

After the careers fair please box everything up again so we can arrange for it to be collected.

“The careers fair event was a real success. The children really enjoyed the Lego exercise, the teachers asked me to return in order to talk to them a little bit more about maths.”

The OR Society’s stand at a careers fair is likely to be the only stand promoting careers in OR. Therefore, when you attend a careers fair you are representing The OR Society and the variety of careers available within the wider OR community, as well as your own company and experiences in OR.

We encourage volunteers to take along one or two leaflets promoting OR careers within their firm or industry, this often encourages volunteers to talk about their own experiences in OR. However, we ask that volunteers aim for a balance between promoting their employer and the full range of careers in OR.

ORiE Workshops

ORiE workshops are exercises aimed at students that demonstrate real-life uses of OR. Our workshops are designed to be fun, interactive and engaging to highlight the usefulness of maths and operational research (OR) in the real world. They can be downloaded free of charge from the [TES website](#) or from [our website](#).

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 workshops, apart from the Theme Park Trip workshop which requires up to two hours.

The workshops are designed to be easy to use, with minimal prep work required. The downloadable packs include the slide deck, speaker notes, student worksheets and answer sheets

and any supplementary documents needed. If you are running a workshop, we will post a box of materials containing student worksheets and any other materials needed, such as Lego.

1 – Lego Furniture Factory: Can you help furniture company SWEDEBUILD design a new furniture range and maximise their profit? Use Lego to model the furniture and work out which combination of tables and chairs is the most profitable, and then see if you can use algebra to reach the same answer. We recommend running this with classes in Year 9 or above.

2 – Climbing the Careers Ladder: Play our very own version of snakes and ladders and learn about maths-related careers! Playing the board game is used as an introduction to flow charts and algorithms. This workshop is suitable for Year 6 upwards.

3 – Theatre Booking: You’re in charge of organising bookings and seating for a theatre company. You have to decide where people sit if anyone sits by themselves, and what to do with group bookings. You must find the most efficient way to seat people and factor in audience preferences. This workshop is a great introduction to bin-packing algorithms. We recommend running this with classes in Year 8 or above.

4 – Paper Cups: This is a competitive challenge in which teams of students are timed building paper cups and must organise the task into subtasks, such as folding or designing. This leads into thinking about efficiency and process

improvement. Students have a chance to make changes to their process before repeating the exercise and then comparing the means, standard deviations and variances to check whether they were successful or not. We recommend running this with classes in Year 10 and above.

5 – Cooking Bolognese: Have you got time to cook, wash up and eat before meeting your friends at the cinema? What time do you need to start cooking? How long will each step take? This workshop uses critical path analysis. We recommend running this with classes in Year 10 and above.

6 – Theme Park Trip: You're organising a school trip for your friends at school. What time should the coach leave? Which ride should you go on first? See if you can sort out all the logistics so you get to go on every ride! This workshop covers the travelling salesperson problem and Hamiltonian cycles. We recommend running this with classes in Year 10 or above. This workshop can take up to two hours to run.

7 – Sports Matching: You're the school sports captain and you need to allocate students to different teams. Each student has sports they are good at and sports that they enjoy. Can you assign them to ensure your school wins the sports day? We recommend this workshop for classes in Year 10 and above.

Science Fairs

These often resemble a cross-between a careers fair and a maths workshop. You will be exhibiting and talking to students while providing them with interactive exercises to try.

Science fairs are quite varied, with the common thread being that they are all quite busy! Depending on the set up of the day, you might be running a 10 minute activity as students come up to your stand, or you might run one of our workshops several times throughout the day to three or four groups of c.30 students. Sometimes the science fair will be somewhere in the middle, and groups of students will rotate around stands at 10-15-minute intervals.

Because science fairs are busy, we never send volunteers to science fairs alone. You are welcome to take a colleague, or we will pair you up with another interested volunteer or the Education Manager. This gives everyone chance to take a break for lunch and have a rest!

We will let you know exactly what to expect from the science fair you volunteer for and will provide all of the resources you'll need, including pop-up banners, tablecloths, activity materials (such as Lego) and leaflets and freebies. We will let you know which sort of activity will be most suited to the event, and let you choose which you would like to run. At the end of the event, we will ask you to box up the materials so we can arrange for them to be collected.



Volunteer Tips

Our most important volunteer tip is that the Education Manager is happy to help and support you with any element of volunteering, including implementing the tips below.

Think about the delivery

Students are likely to be more interested if the delivery is engaging and interactive. We will support you with this and recommend asking questions to break up a presentation and keep your audience thinking.

For example, encouraging students to think about how they would solve a problem and creating a discussion can be a great way to introduce the topic of OR and explain how OR would solve that problem.

Relate it back to real life

Find ways to connect to students' personal experiences to help them understand and remember new information. Because OR is fundamentally embedded within so much of everyday life, we're very fortunate that there will be at least one way you can make a connection between your work and a students' day to day life.

Use an abundance of praise

Most students prefer to be praised for effort rather than ability, so consider phrases that reflect that. For example, "Well done, you've all worked really hard on that" rather than "Well done, you're all so clever".

"The students and staff were impressed by both talks as they opened their eyes to a whole world of opportunities available to them that they weren't previously aware of."

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Interest is key

Interest, motivation and attention are prerequisites for meaningful learning. This means that students need to be interested in what they're doing if they're going to learn. Students are interested by new and unfamiliar topics or methods, so telling them what you do is a great opportunity to engage them.

Use different formats

When developing and updating our resources, we try to present information in different formats (e.g. oral, video, hands-on) because we appreciate that students cannot be expected to learn the same material at the same time in the same way. Keep students interested by using different resources.

Workshops

Walk around the tables and engage with students when they are completing a task and ask them how they are getting on, what they've found etc.

Encourage discussions (either group or whole class) so students take ownership of the topic and seek solutions.

Presentations

Try to talk around your slides, use them as a guide while you share your personal experience and enthusiasm for OR. Be prepared, know the order of your content and roughly how long it lasts.

Questions

Choose the right time for questions. For presentations where the duration is less than 20 minutes, allow for questions at the end. If your presentation duration is more than 20 minutes provide several

opportunities for questions between sub-sections of your presentation.

Your volunteering

Health and safety

When volunteering for The OR Society, you have a duty to take care of yourself and others around you. Please take care to follow any Health and Safety policies and regulations in place at the institutions you visit, including fire procedures. You should be given information about what to do and where to go in case of a fire or emergency.

If you feel that any part of your volunteering role may pose a risk to the health, safety or welfare of you or another individual, please speak to the Education Manager.

Promptly report any accidents, including cases where no injury or damage occurs, to the institution you are visiting and to the Education Manager.

If you become unwell while you are volunteering, please inform both a member of staff from the institution you are at and the Education Manager as soon as possible.

Manual Handling

If you help to set up or set down a stand at an event this may involve carrying boxes, moving furniture or other manual handling. Please follow the guidelines below when carrying or moving anything.

Do:

- Lift with your legs bent.
- Keep your back as straight as possible.
- Keep the load close to your body.

- Hold the load at opposite corners.
- Ask for help if you want assistance.

Don't:

- Keep your legs straight.
- Bend your back.
- Carry something you are uncomfortable lifting.

"It required little preparation: the problem and the slides were all on the website; we just added a couple of slides with a bit of technical information for the interested and skilled pupils, as well as mentioning a real world example from industry to draw more interest. It was an enjoyable way to spend a morning and we were glad we could promote OR – a classic win-win situation!"



Safeguarding

The OR Society is committed to ensuring the welfare of its employees, voluntary staff and other individuals who take part in The OR Society's activities, especially children and young people.

We expect that volunteers are never left alone with children or young people during visits. There may or may not be another volunteer or The OR Society's Education Manager present, but there should always be a member of staff from the participating institution present. This is to safeguard the welfare of children and young people and for the personal safety of our volunteers.

Volunteers interacting with attendees under the age of 18 will also be required to complete an online safeguarding training module and to undergo an Enhanced DBS check.

We expect volunteers to raise any welfare concerns and disclosures or allegations of abuse with the Education Manager, who is a designated safeguarding officer and will take appropriate action in line with our safeguarding policy.

Expenses

The OR Society will reimburse the costs incurred by ORiE volunteers in line with our expenses policy. All receipts and tickets should be retained and submitted to The OR Society's Education Manager along with a completed expenses claim form and a completed feedback form which the Education Manager will send you following the event. Please submit your claim within three months of incurring the costs. Email the completed

expenses form to:

education@theorsociety.com

Insurance

The OR Society has appropriate insurance in place to cover ORiE volunteers, including employers' liability insurance and public liability insurance. These will cover injuries that may occur while volunteering, however, our insurance does not cover volunteers' personal belongings.

The OR Society does not provide motor insurance for volunteers who drive to events. Most insurers class volunteering as 'social, domestic and pleasure', which is included in car insurance as standard. However, it is recommended that you double check with your insurer that you have the cover you require.

Training and development

We offer a training programme for ORiE volunteers to help you carry out your volunteering role with confidence. You have unrestricted access to information on volunteering with ORiE on our website and the Education Manager is always able to offer support and guidance. We periodically run volunteer training courses which include an overview of the ORiE programme's aims, resources and support, an explanation of the different ways you can volunteer with ORiE and an interactive demonstration of one of our workshops. The slides used in the training course are available on request from the Education Manager.

Resolving concerns

We work hard to ensure that institutions and volunteers engaging in the ORiE programme find it enjoyable and rewarding. If, however, something has gone wrong, we would like to know

about it. If you have any problems or complaints about your volunteering, please notify the Education Manager, who will make every reasonable effort to resolve the issue in line with our grievance policy.

Support & advice

The OR Society would like all volunteers to feel confident in delivering high quality, informative OR outreach. When preparing for a visit or event, volunteers can access a collection of resources. Don't forget if you need further help, we are able to offer guidance and help at any step along the way. You can contact the Education Manager on education@theorsociety.com or by phoning 0121 234 7816.

Photography

We may use photographs of volunteers carrying out their roles for promotional purposes, such as in a leaflet or online. You may ask that photographs of you are not used.

Please do not photograph or share images of any children or young people without their parent, guardian or teacher's prior permission. Some events have photography and image sharing policies in place, which should always be followed. If you have permission to take photos and wish to do so, please share them with the

Education Manager as they may be used to promote the ORiE programme.

Data protection & confidentiality

Volunteers are asked to maintain confidentiality while volunteering. If you are given information 'in confidence' you are legally obliged to keep it confidential. Please refer to our data protection policy for more information.

Please note that when you are acting on behalf of The OR Society, any data you collect or hold (such as contact details) belongs to The OR Society. It should be passed along to the Education Manager. No personal copies should be made.

Whistleblowing

The OR Society is committed to ensuring the highest possible standards of public service. We have a whistleblowing policy to help volunteers who have concerns over wrongdoing within The OR Society.

Volunteers wishing to raise concerns can discuss them with the Education Manager. For more information please see our full whistleblowing policy.

Further information

The OR Society takes the valuable contributions of ORiE volunteers seriously. This is reflected in the policies and procedures we have that cover both volunteers and staff. For a

"We managed to speak to many people and provided a high-level overview of OR, being able to give a few examples from experience. As I am on an industrial placement myself, I was able to relate to the students and could talk about my experiences and how interesting I have found OR. People were attracted to the stand and interested in data science related roles."

copy of any of the below documents, please visit [our website](#) or contact the Education Manager.

- Data protection policy
- Equal opportunities policy
- Expenses policy
- Grievance policy
- Health and safety policy
- Safeguarding policy
- Whistleblowing policy

Thank you

ORiE outreach work opens students' eyes to an area of study and a potential careers path that they are unlikely to have heard of before.

The outreach efforts of ORiE volunteers make a huge difference, both to individual students and the whole OR community. It shapes lives and ensures the future of OR will include curious and capable students.

None of this is possible without the hard work and dedication of volunteers like you.

Thank you.