Imperial College London

How do I design hands-on activities?

Designing an activity that involves your audience for maximum impact

First ensure you have a clear aim and a specific audience in mind. If you are unsure about this, our planning resource will help you.

Hands-on activities are a great way to engage as they allow your audience to become an active participant in what is happening. The more ownership the audience has over an activity, the more of an impact it will have on them. Whether your aim is to inform, inspire, change perspectives or to understand more about your audience, a hands-on approach can be much more effective than a demonstration.

1 | What are your key messages or areas of exploration?

Based on your aim, you should have some key messages in mind that you want to get across to your audience or some areas you want to explore with them. For example, you might want to inform adults about genetically modified mosquitoes, while at the same time understanding how they feel about GM technology being used in this way.

Once you have these you should consider:
• How can my audience learn about these concepts in a hands-on way?

• How can I build opportunities to learn from my audience into the activity?

In the example above, you might build these concepts into a game, where the audience has to address an epidemic of Malaria and are given various tools to do so, including GM mosquitoes. Playing the game will not only allow the audience to learn about the technology but will also allow you to record their choices and see how willing they would be to apply it.

2 | How involved is the audience?

As you design your activity, you should consider how involved you want your audience to be. Not all hands-on activities are alike, and you can give them various levels of control over what happens.

Sensory
In this case you are allowing the audience to interact using their senses. A simple example might be having objects your audience can touch and take a closer look at. A more elaborate example might be a fully-immersive VR experience.

Walkthrough
This involves the audience completing the activity themselves as you guide them. For example, you might walk them through the steps of a simple experiment, or get them to play a game with restrictions on what they can do. The activity is structured so that it must be completed in a specific manner, which is impactful as the audience learns through practical application.

Exploratory
In this scenario, your audience not only completes the activity but they have control over how they complete it.

For example, you might provide them with a puzzle that can be completed in a number of ways, or you may have a set of activities where the audience chooses the order in which they complete them. Here the audience has autonomy which allows them to follow their curiosity, maintaining their interest and helping them to learn in ways they are suited to.

Ownership

You can hand over ownership of the activity to the audience and give them complete control over what happens. This might involve giving the audience a

scientific topic which they must create a piece of art or short play about. Not only is this a great way to help you gather information from your audience but it provokes them to seek out the knowledge they need.

Note:
While it is often more impactful to give your audience control over activities, it isn't always practical or necessary. Therefore while we encourage you to give your audience more control when possible, even demonstrations with no interaction are perfectly fine and have their place.

3 | Gathering resources

Hands-on activities often require more resources than a simple talk or demonstration. Therefore, while it can be quite exciting to develop ideas for hands-on activities, they may be intimidating to implement. Here are some top tips to help you gather the resources you might need:

- **Recruit others** – Not only will it help to have the people power to deliver your project, you can find collaborators with the expertise needed to carry it off. See our resource on recruiting people to your activity.
- **Get funding** – If you need equipment, props or professional services to put your activity together,

consider where you might get funded. See our resource on funding for more information.
- **Ask around** – It may be that someone around the college has what you need. Contact our societal engagement team or the engagement practitioner in your department to see if there is anything available.
- **Start small** – If necessary, start small and cheaply. E.g. if you have a digital game in mind, can you create a paper version for now? If you can show this is successful at one of our festivals or Lates, this might be a route to funding in future.

4 | Refining your approach

When you have an activity prepared, it's a good idea to test it on your target audience, so you can be sure it works the way it was intended. Observe the activity to make any notes and get feedback from your audience. Whatever you learn can be used to refine your approach before you use it. For help evaluating your project, see our resource.

Top tips

- **Make it meaningful.** While a hands-on activity is often more effective than a passive experience, visitors will be able to tell if you have just made an activity interactive for the sake of it. Think about

what will be fun to participate in and how the visitor experience works.
- **Interactivity takes time.** The more interactive and autonomous an activity is, the longer it is likely to take to implement. Bear this in mind when you are planning your event and allow for sufficient time.
- **Consider accessibility.** Involving many senses can make an experience more accessible for audiences, by not needing to rely on one sense such as sight or hearing. On the other hand, too much sensory stimulation can be overwhelming for others, for example those on the Autistic Spectrum. Consider the accessibility needs of your target audience.

Related links and resources - Let us know of others!

- Come to one of our Societal Engagement events and be inspired by what Imperial is currently doing: imperial.ac.uk/be-inspired/societal-engagement/get-involved/events/
- The British Interactive Group are a network of those involved in creating and delivering interactive STEM activities: https://www.big.uk.com/
- To get inspired by ideas for science activities see: https://www.sciencebuddies.org/