# Exploring controversial issues: a teachers' guide

A resource for teachers to help facilitate classroom discussion on controversial science issues



## For teachers of

Science • Citizenship • PSHE • Religious Studies

**Explore @ Bristol**'s **Citizen**Science project is supported by the Wellcome Trust
**www.at-bristol.org.uk/cz**

**Citizen**Science @ **Bristol**

Bristol

# An introduction to CitizenScience

In recent years, the blurring of boundaries between citizenship and science education relating to emerging issues in science has resulted in changes to the curriculum. This new curriculum has called for an emphasis not only on the skills of explaining, theorising, modelling and evaluating evidence but also on the implications of science on society. Emerging issues in the media such as genetics, nuclear power, nanotechnology etc. have raised questions of how technologies should be used and who should be making the decisions.

Since 2003, **Citizen**Science has been at the forefront of experimental learning in this field, and has adopted and adapted an assortment of approaches and methods to engage young people in meaningful discussion and debate of contemporary biomedical topics and their impact on society. After working with partner schools, science centres, experts and other education professionals to organise and deliver 115 special events and 30 educator training opportunities, **Citizen**Science has created a variety of useful formats and resources to aid meaningful classroom discussion.

The aim of this resource is to share the learning experienced during the exploratory process of **Citizen**Science. Included are tips on how to:

- run a variety of discussion formats
- motivate students to join in discussions
- make the most of experts and incorporate them into lessons
- effectively facilitate discussion

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# Getting students interested

## Who?

Young people are prime subjects for discussion activities. Discussion encourages young people to develop their communication, listening, reasoning and social skills. Discussion activities also expand viewpoints and, if very successful, can also encourage active citizenship on a variety of levels.

## How?

- Secure the interest of young people by making the topic relevant
- Choose empathetic topics such as health-related issues
- Address current stories in the media, topics they may be familiar with or issues that have been addressed on familiar and popular television programmes
- Use 'hooks' that young people might be familiar with and build upon their knowledge

Introduce discussion formats gradually and then make them a regular occurrence. As young people become more familiar with the formats, not only will their debating skills develop but they will also take ownership of the discussions because they are concentrating more on the content and not the methods used to discuss the content.

Instil in students the skills and behaviours involved in 'effective' discussion and debate. Talk about how to present ideas, ask informed questions, provide or ask for evidence, challenge the opinions of others, respect others, empathise, seek alternative viewpoints and attempt to achieve a consensus.



**Bright idea!**
Allow students to brainstorm issues they think are current and controversial and develop ideas from that. This gives them a sense of ownership over the topic.

# Facilitation

**Good facilitation by an educator is central to a successful debate/discussion with young people.**

## Be a facilitator, not a teacher

Sit within the circle of discussion. Attempt to remain 'invisible' when discussion is flowing between students. Step in when the discussion needs to be moved along, inappropriate comments are used, or supporting evidence needs to be clarified. The facilitator should support the momentum of the discussion, but should not overpower it.

## Create an environment

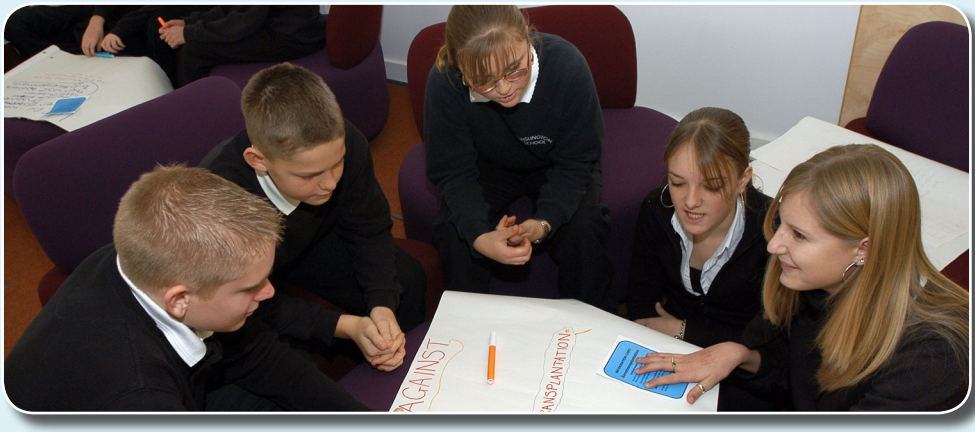
If you are within a lab setting, try leaving the lab and using a multipurpose classroom. If possible find a large room that is open and gives the participants space. Use circles of chairs as platforms for discussion. Circles create feelings of belonging and facilitate better discussion as everyone is on an equal playing field. Creating a different environment adds to the success of the discussion because it differentiates itself from the routine.

Take the time as a group to discuss and agree a set of basic **ground rules** of appropriate behaviour for the discussion of sensitive and controversial issues. These ground rules can be written down and referred back to in future discussions.

## Dealing with inappropriate behaviour

Whenever possible, refer back to the agreed ground rules. If the comment was a personal attack, you should feel free as the facilitator to draw the line at what is acceptable in that situation and question the motives behind it.

Remain impartial as much as possible. Occasionally students will ask for your opinion. Either do not give it and deflect by asking what others think, or save it until after the discussion has ended. If you are assuming the role of 'devil's advocate' in an effort to further discussion, make it clear that you are performing a role and this is not necessarily a personally held belief.



# Facilitation

## Methods of group work

As any experienced facilitator will tell you, trying to facilitate a large group of young people can be a daunting task! Instead, try breaking up larger groups of students into smaller 'working' groups. There are a number of approaches to these groups that keep the activity engaging and the students on task:

### Listening triad

Pupils work in groups of three. Each pupil takes on the role of speaker, questioner, and recorder. The speaker explains something, comments on an issue, or expresses an opinion. The questioner prompts and seeks clarification. The recorder makes notes and gives a report at the end of the conversation. Next time, roles are swapped.

### Envoys

Once groups have carried out a task, one person from each group is selected as an 'envoy' and moves to a new group to explain and summarise, and to find out what the new group thought, decided or achieved. The envoy then returns to the original group and feeds back. This is an effective way of avoiding tedious and repetitive 'reporting back' sessions. It also puts a focus on the envoy's use of language and creates groups of active listeners.

### Snowballing

Pairs discuss an issue, or brainstorm some initial ideas, then double up to fours and continue the process, then into groups of eight in order to compare ideas and sort out the strongest points or to agree on a course of action. Finally, the whole class is drawn together and spokespeople for each group of eight feed back ideas. This is a useful strategy to promote more public discussion and debate stemming from non-threatening discussion between pairs.

As a facilitator, your most important task is summing up and clarifying issues for students at the end of a discussion.

## Working with experts

**Experts are invaluable to discussion activities. They provide young people with access to differing and informed viewpoints. More importantly, they can have a strong affective impact as 'real people' which can intrigue students and impact on their activities and discussion.**

Experts come in many forms, not all are scientists. They can be people who have an emotional attachment to a controversial issue, who study a controversial issue or who are involved in policies concerning such issues. Above all, they should be good communicators who understand the natural curiosity of young people.

There are many organisations to approach in order to meet experts who have experience in public dialogue. Some examples include:

- Association for Science Education (ASE)
  **www.ase.org.uk**
- The British Association for the Advancement of Science (BA)
  **www.the-ba.net**
- The Wellcome Trust
  **www.wellcome.ac.uk**
- Companies/research centres that have a public dialogue remit
- Universities; try their schools liaison officer
- Personal contacts; e.g. your local GP



**Bright idea!**
Contact your local science centre and see if they have any 'Meet the Expert' programmes that would support your topic.

# Working with experts

**You need to make sure that your expert is well briefed and prepared for discussion activities. Make sure you define their role. Experts can:**

- Add formal input as a prelude/summary to a discussion or a creative activity
- Give advice, answer questions and offer anecdotes
- Act as a mentor/facilitator to groups of students

If the expert knows what to expect and is well briefed, you can expect exciting and fruitful dialogue.

**Citizen**Science used experts with great success. In one format, two nanotechnology experts presented very different project proposals to the students. The students then asked questions and voted on which project they would fund.

Another useful format for a special event is the 'Speed dating' approach. Small groups of students spend limited time with different experts and move in a round robin fashion. If you can recruit enough experts, this is an excellent way to have students focus their questioning in a more intimate atmosphere. Experts should be briefed that the students should dominate the conversation.

If available, videoconferencing is a convenient method to engage more experts. It also provides a 'wow' factor for young people. **Citizen**Science events have enabled young people to present their own policies to experts acting as mentors and judges.



# Scenario discussion/decision making groups

## What is it?

Students are assembled in small groups of five or six. They are given a variety of 'scenario' cases which they must read through as a group and discuss. Students then make decisions on which they would choose to support and why.

## Works best with

KS3 (upper) and KS4

## What is the format?

Explain that students are to act as an Advisory Group to inform decision making policies. Resources and funding are limited, so they must prioritise some scenarios over others.

Students are given case cards to consider. They must decide as a group which cases they will support and which ones they will not. All decisions must be supported by reasons. **Citizen**Science used the topic of 'Who Should Get IVF Treatment' as an effective example of scenario debate.
To download this free resource, please visit **www.at-bristol.org.uk/cz**

## What else can I do?

Scenario debate is highly flexible. You can include experts in policy/decision making as mentors and information providers for young people. You can also extend the experience by discussing criterion-based decision making and having students create their own criteria prior to or after deciding upon their scenario cases. The key Learning Outcome from this activity is to introduce the concept of 'criteria' to inform decisions to young people and have them discuss and make an informed group decision. It might be worth bringing to their attention that this is how policy decisions are made every day.



# The television chat show

## What is it?

Mirroring the format of television panel discussion programmes, small groups of students are assigned the roles of pre-identified special interest groups.

## Works best with

KS4

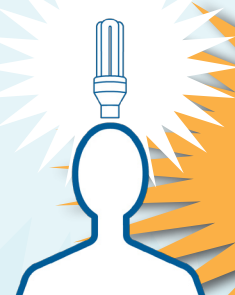
## What is the format?

A good topic is essential for the TV chat show. It must be one where there are a number of parties interested in the outcome. For example, **Citizen**Science addressed the question 'Should bio-prospecting be allowed in rainforests?' This introduced a number of special interest groups. The class is split into groups who will represent the different interested parties. Each group has access to information. Their challenge is to assess the information given on the topic and decide what position the party they represent would take on the issues. One member of each group is nominated to act as a representative. At the beginning of the 'show' each representative sits at the front with the host (the facilitator) and introduces their group's position. Questions are then invited from the audience and free discussion is generated.

## What else can I do?

Because of the sometimes chaotic nature of the TV chat show, it is essential that the information provided is well presented to the groups and offers them the opportunity to raise issues that both support and oppose their position. This allows students to practice both their communication and research skills. The role of the 'host' (facilitator) is essential to the success of this format. The audience must feel free to challenge the positions of the representatives but also to pose questions to other members of opposing groups within the audience. The host is responsible for making sure each person has the opportunity to state their opinion.

This format is a great way of engaging with students, because of its departure from the routine.



**Bright Idea!**
Invite experts as 'special guests' to provide information and offer different views.

# Familiar household games

## What is it?

Familiar household game formats enhance science knowledge of a particular controversial issue within a well-known framework. They also serve as a useful method of providing background information and facts to support debates.

## Works best with

KS3

## What is the format?

**Citizen**Science has trialled many different types of household games. We have found that variations on Pictionary, Taboo and the classic Pairs game have met with the most success.

## Illustrate (a variation on Pictionary)

In this game pupils have the opportunity to express their views visually. The players try to guess various words, phrases or scientific techniques by drawing clues for each other. This game is an alternative method of expressing opinions and prompts discussion through images.

## Taboo

The object of this game is to successfully describe a scientific word without actually using the word itself! Players have the opportunity to learn new words or phrases and improve their own understanding by explaining to others what they think the word is. Everyone in the group can discover, discuss and debate each other's definitions.

## Pairs

Pairs is a memory game where cards are placed face down on the table, and players take turns to turn two over. If the images on the cards match, they win the pair. If not, they are returned face down and the next player has their turn. This is a fun visual game where players match pictures which each contain one half of an open-ended question. Upon finding a matching pair and a whole question, the question is opened up for discussion to the rest of the group.

## What else can I do?

Templates for games can be found on the **Citizen**Science website. Please feel free to adapt them for any topic. **www.at-bristol.org.uk\cz**

# The Fisherman's circle

## What is it?

The Fisherman's circle provides a short and effective way of enabling students to present both sides of an argument with regard to a particular issue, and helps them to then form their own views.

## Works best with

KS3 and KS4

## What is the format?

- Create a 'double' circle by taking chairs and forming two equal circles facing each other, so that each young person is sitting opposite another.
- The inner circle is given one to two minutes to convince the person sitting opposite them on the pros of a controversial issue (for example, wind turbine power). During this time, the person on the outer circle will sit and listen without comment.
- Next, the outer circle will have one to two minutes to convince the person sitting opposite them on the cons of wind turbine power. The person on the inner circle will sit and listen without comment.
- The students on the outer circle then stand up and move one chair to the left, so that they are now sitting opposite another person.
- Repeat the above process.
- Have the outer circle move one chair to the left again.
- This time, have the students change roles. The inner circle student will discuss the cons of Wind Turbine power and the outer circle student will discuss the pros.
- Debrief.

## What else can I do?

If possible, try this activity in a multipurpose classroom. You can also try the Fisherman's circle standing instead of seated. If it gets noisy, pair students off and put them in different areas of the room and rotate them as above.

This activity is a wonderful way for students to express their understanding (or confusion) surrounding a controversial issue in a non-threatening environment.

# Professional drama

## What is it?

Professional drama can be a powerful format for a student audience. A post-show discussion can often yield insightful and rewarding dialogue between students.

## Works best with

KS4 (depending on the content of the play)

## What is the format?

Locate a theatre company performing drama addressing controversial issues. Many charge little or nothing at all for educational performances. Current companies performing tours include

- Y Touring **www.ytouring.org.uk**
- Full Beam Visual Theatre **www.fullbeamvisualtheatre.org.uk**

## What else can I do?

Another possibility is developing collaborative cross-curricular projects between science and drama departments. **Citizen**Science supported such a project entitled 'Taking Ages'. Please see our website under 'Previous events 2004' for more information.

Little compares to experiencing live drama as a stimulus for discussion. If you are considering a collaborative project, it requires both time and expertise from science, drama and often PSHE collaborators.



# Using media and art

## What is it?

Students use photography, film or art to explore controversial issues.

## Works best with

KS3 and KS4

## What is the format?

Media and art should be used as an extension activity of the other formats discussed. The media/art is the 'hook' and young people have to take ownership of the mechanics behind the media/art before they can own the content. Media and art are engaging methods for young people, but be sure to emphasise the importance of content over the format in the long run.

## What else can I do?

This is a useful format if you are considering a cross-curricular project within your school. Using media and art to explore controversial issues is often very beneficial for students who are visual learners but lack developed reading and writing skills.



*"We had the inspiration for our picture when we were testing our DNA and arguing our case on whether cloning and designer babies were good ideas. The moral of this photograph is you cannot pay for perfection. You should love and want a child for what they are: unique."*

To view other images from the **Citizen**Science photography/genetics summer school 'Life in the Frame' visit **www.electricdecember.org/05/calendar/11/**

# Lines of agreement

## What is it?

This resource is designed to stimulate debate amongst smaller groups of students by asking them to investigate a controversial issue and consider the ethical implications of personal beliefs. It is also known as a 'value continuum'.

## Works best with

KS3 and KS4

## What is the format?

Lines of agreement is a very flexible resource that can be used as part of wider work on any topic. Students sit at a table with two cards reading 'Agree' and 'Disagree' at opposite ends of the table. Students are given statement cards at random and must determine as a collective where the statement card should be placed on the invisible line between 'Agree' and 'Disagree'.

Templates for Lines of agreement can be found at **www.at-bristol.org.uk/cz**

## What else can I do?

This activity is designed to encourage discussion within time limits and encourages quick thinking. Ideally, it is an activity to do following information gathering activities so that participants can make informed choices and observations.



**Bright idea!**
Having young people work around a table is a formal approach to this format. Another option is having students physically represent their opinions by designating one side of the classroom 'Agree' and the other side 'Disagree'. If you encounter the 'herd' mentality ask the students to stand in a line facing you with their eyes closed. Read aloud a statement and if they agree ask them to step forward of if they disagree ask them to step back. Then have them open their eyes and discuss their different positions.

## Further support

**Citizen**Science
**www.at-bristol.org.uk/cz**

**BEEP: Bio Ethics Education Project (University of Bristol)**
**www.beep.ac.uk**

**PEEP: Physics-Ethics Education Project (University of Bristol)**
**www.peep.ac.uk**

**IDEA: Debatabase**
**www.idebate.org/debatabase**

**Royal Society (for current science issues)**
**www.royalsoc.ac.uk**

**Science Learning Centres**
**www.sciencelearningcentres.org.uk**

**Scizmic**
**www.scizmic.net**

**DeCiDe**
**www.playdecide.org**

Please let us know what you thought of this resource by completing and returning this feedback form.

Was this resource useful to you?
☐ Yes ☐ No

What are the strengths of this resource?

.....

What improvements would you suggest?

.....

In what format would you prefer future resources to be available?
☐ Hard copy ☐ DVD/CD ☐ Online ☐ Other (what?.....)

Please include your email address if you wish to be kept informed of future developments in the **Citizen**Science project.

.....

Please return this form to the Freepost address overleaf, fax it to **0117 9157 202**, or email us your comments at **education@at-bristol.org.uk**

CitizenScience @Bristol

The **Citizen**Science project is designed to be instrumental in engaging young people in debate and discussion about contemporary bio-medical issues. Working with partner schools and external professionals, the project has delivered over 115 special events for young people to trial new debating formats and resources. **Citizen**Science aims to build on young people's knowledge and understanding of contemporary science issues and to assist in developing key skills including communication, team-work and problem solving.

@ Bristol

**Explore @ Bristol** is one of the UK's most successful science and discovery centres. By motivating interest and feeding curiosity about science, technology, natural history and the environment, **Explore @ Bristol** has firmly established itself as a leading provider of first-class informal education.

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Schools Liaison Officer
At-Bristol
FREEPOST (SWB578)
Harbourside
Bristol
BS1 5DB