

Teachers Notes

Your zone is:

TO ACTIVATE YOUR TEACHER ACCOUNT

1. Go to www.imascientist.org.uk
2. On first visit, enter this ACCESS CODE:
3. Click 'register'
4. Choose a username and password, you can write them here so you don't forget them:

Checklist

The things you need to do before the event begins are:-

1. **Activate your account** (as above) so you can book live chats, access further teaching materials, quiz answers, etc.
2. **IT Checks:** Get your IT person to go to this page and make the checks we recommend www.imascientist.org.uk/IT (I know you are busy, but we are telling you from experience that if you miss this step you will probably wish you hadn't! School firewalls can block parts of the site. This can usually be fixed, but not in the middle of a lesson.)
3. **Book live chats** with scientists, if desired (more notice means more chance the scientists will make it).

If you need any help please email admin@imascientist.org.uk or call 01225 869413.
For further information please visit: www.imascientist.org.uk/teachers

Timetable

31st May: Site online.

You can do background work and prep with your students

14th - 18th June: 'Getting to know you' week.

Students can ask questions and chat to scientists

21st – 25th June: Evictions week.

Students can still ask questions and chat

Also evictions every day from Tuesday and winner announced on Friday!

Teachers Notes

(Hopefully!) these notes tell you everything you need to know to run the event.

What is 'I'm a Scientist'?

- Interactive website for students to 'meet' scientists
- Competition where students decide who gets the funding
- Supporting lesson plans and teaching materials

I'm a Scientist, Get me out of Here! is an event where your students go online, talk to real scientists and learn about How Science Works (HSW). It's in the form of a X Factor style competition between the scientists.



Students submit questions which scientists will answer by the next day (usually). These stay on the site so everyone can read the questions already asked and answered.



Young people have live online chats with scientists (these can be booked in the TeacherZone on the website).



Students vote for the scientist they think should win a prize of £500 to promote their work.

How long will it take/How much time should we spend on it?

Maximum: 12 hours

Including interacting with scientists on the website, all lesson plans and info sheets there is enough material for about 12 hours of lessons, depending on what you decide to use.

Average: 3-5 hours

Most teachers will do lessons 1-4. Many will have more than one live chat.

Minimum: 2 hours

This will usually be 1 introductory lesson, 1 homework of reading more about the scientists and submitting questions and 1 lesson of live chat with scientists.

Be warned:

Most teachers, when asked what they would do differently next time said, 'spend more time on I'm a Scientist'.

Tip:

In the second week of the event, even in lessons that are not on I'm a Scientist, spend five minutes at the start or end of the lesson looking at who has been evicted.



Live chats

“Normally they start putting their coats on five minutes before the end but [when doing the live chats] they were in their chairs still after the bell went.”

Michelle Crooks, teacher, King Arthur’s Community School

- Live chats are consistently the most popular part of the event – for students, for scientists, and even for teachers!
- They are fun and give immediate contact between scientists and students. Students realise scientists are ‘real people’ and feel connected to them.
- Many teachers tell us that quieter students are more active in Live Chats than face to face and it can be an interesting change to class dynamics.
- Don’t be embarrassed if your class are boisterous or mess about. I’m prepared to bet that we have seen worse. The moderators are used to dealing with this.
- Make sure your IT person has done their checks before the first chat – this is the part of the site most likely to have problems with the firewall.

Explain to students that they are going to have an MSN style chat with some real scientist! But that they should try to ask sensible questions and not just talk to each other. Tell them there will be a moderator in the chatroom who will help keep the conversation on track and will block disruptive pupils.

Please, please, please, don’t set your class loose in live chat without any preparation. We know from experience that these are the chats that are most likely to go nowhere – students often won’t be interested, they won’t get who the scientists are, they can’t think of questions to ask them. Ideally do at least Lesson 1 (“You’re the judges”) and Lesson 3 (“Meet the Scientist”), before the live chat.

Lesson Plans

- All lessons are in the format: starter/main/plenary.
- The lesson plans and the event work together to develop HSW skills – see the back page for more details.
- For each lesson we have suggested ways to adapt the lesson for higher or lower ability groups.
- Each lesson has a single learning objective, with curriculum links and other learning outcomes flagged.
- All lessons should fit into a 50 minute lesson slot, but can be easily expanded to one hour or more.
- You can adapt the lessons to suit you (of course!). If you come up with better ways of doing anything, or interesting adaptations, we’d love to hear them!
- There are more lesson suggestions and further resources on the website at www.imascientist.org.uk/teachers
- These include powerpoint presentations for each lesson and templates so you can make your own debate kits.



Teacher tips – learn from other people’s mistakes!

In every event we ask teachers in the feedback survey what they would do differently if they ran the event again. Here are the most common answers, in order of popularity:-

1. Spend more time on it
2. Do it with more students
3. More preparation time – especially before live chats

“Prepare the class more, carry out the discussions first. Get them thinking about what scientists do, and the decisions they have to make.”

“I’d spend more time working with the group looking at the sort of questions they might like to ask. I did some of this but a number of students persisted in asking ‘trivial pursuit’ type science questions”

4. Use smaller groups or pair up students in live chats

“I would book more chunks of online chat but split the group so there were fewer students on at a time to give more chance of dialogue.”

“I would pair up weaker members of the group during live chat so they could work as a team to read/assimilate information/type responses.”

5. Use the provided resources more

“I would stick closer to your lesson plans as I thought they would have more realistic views of scientists than they did”

After the event

- Please do fill in the feedback survey we email you. You teachers are the experts on what happens in the classroom. Your feedback really helps us to make the event better in future.
- Please also encourage the students to fill in the student survey too.
- Student winners: In each zone the moderators pick a student winner (who they think has asked good questions and really engaged with the event). They get a certificate and a £20 WH Smiths voucher. We’ll let you know if this is one of your students.
- Participation certificates: To help all the students feel they have done something important we have created ‘Student participation certificate’ templates. You can download these from teachers’ area on the website and put your students’ names in.



Lesson Plans

Lesson	Format	Suggested adaptations
<p>Lesson 1 – You're the judges! Choose and rank criteria by which to judge the scientists</p>	<p>Starter: 5 minutes Explain the I'm a Scientist event briefly (show site on projector/interactive whiteboard if poss) - students will get to 'meet' a group of scientists and then vote for which one they think should get some money. They have the power! What ideas do they have about science at the moment? Will they change?</p> <p>Activity 1: Up to 10 minutes Log on to the website and go to 'my science words'. Get students to type in all the words they think of when they think about science. This should just be a 'top of the head' list and they can include anything. NB This activity is crucial later on for helping students reflect on their own learning during the project.</p> <p>Activity 2: 25 minutes 1) Read list of criteria. 2) Students vote with show of hands whether those qualities are IMPORTANT or NOT IMPORTANT. Get students to discuss why for each one. Aim for about 10-15 important. 3) Get the class to whittle it down to five most important criteria. Write these five qualities on board. 4) Get class to rank the five qualities.</p> <p>Plenary: 10 minutes</p> <ul style="list-style-type: none"> • What kind of information will this give? • Any other criteria? • Overall message: Will help you judge scientist as a scientist. <p>Suggested Homework: Make a list of 5 other criteria it might be important to judge the scientists on. Look at the website and note how each scientist performs on the criteria you have picked. Submit questions to find out more if there's not enough information.</p>	<p>Support Less justification necessary. Lead students into the rationale behind their decisions.</p>
<p>Learning objective: Consider a range of criteria and understand that different (important) values may need to be weighed against each other.</p> <p>Other learning outcomes:</p> <ul style="list-style-type: none"> • Encourages students to consider criteria to use in deciding which scientist to vote for and how to judge their work. • Promotes use of sophisticated criteria, not trivial issues. • Gives students ownership of criteria. 		<p>Extension: Starter: Explain the I'm a Scientist event briefly (show the short film on projector/interactive whiteboard if poss) – students will get to 'meet' a group of scientists and then vote for which one they think should get some money. They have the power! What ideas do they have about science at the moment? Will they change?</p> <p>Main activity: Ensure full justifications and explanations are given whenever they express an opinion.</p>
<p>Curriculum links:</p> <ul style="list-style-type: none"> • Introduction of HSW • Consider ethical social and practical aspects of science. <p>Resources: List of criteria, access to I'm a Scientist website.</p>		

IVF Debate

Lesson	Format	Suggested adaptations
<p>Lesson 2 - IVF Debate A structured practice debate on a controversial topic</p>	<p>Starter: 5 minutes What is IVF? IVF covers issues that affect many people. Sometimes the best way to know how someone else feels is to assume his or her point of view.</p> <p>Main Activity: 35 minutes</p> <ol style="list-style-type: none"> 1) Split students into as many groups as the characters you want to cover, and arrange them so they are in their groups at different points around the classroom. 2) Give out character cards – one per group, and give them a few minutes to read them over as a group. 3) Get one of the students in each group to read out their positions to the rest of the class. What are the class's initial thoughts? Is there one position they identify with? 4) Take it in turn to read out their fact. Does it change the way they think? 5) Read the issue? Any different feelings? 6) Read the question to teams they feel it is most relevant to. 7) Re-cap by getting each group to summarize the argument of one of the OTHER characters (preferably from the other side). 	<p>Support Help to structure discussion further by giving the 'prompt sentences' to pupils you think would need them or write them on the board so pupils can see them the whole time, and follow the sentence structure.</p>
<p>Learning objective:</p> <ul style="list-style-type: none"> • To practise discussing and debating issues and expressing an opinion • Understand the arguments for and against In Vitro Fertilisation (IVF) <p>Other learning outcomes:</p> <ul style="list-style-type: none"> • Students realise that experts are 'human' – having info makes you the expert. • Realise that data can be presented in different ways, depending on the point you want to make • Consider social, ethical and factual issues in an integrated way 	<p>Note – This resource is flexible and pupils can assume the roles all the way through, or just assume the roles for the first read out. If pupils do assume the roles all way through make sure you get them to express their personal opinion at the end of the discussion and in the plenary</p>	<p>Extension: Read out all of the card initially. Allow to debate more freely.</p>
<p>Curriculum points covered: HSW</p> <ul style="list-style-type: none"> • Using data to draw conclusions • Societal aspects of scientific evidence • Developing an argument <p>Substantive</p> <ul style="list-style-type: none"> • To evaluate the benefits of, and the problems that may arise from, the use of hormones to control fertility, including IVF <p>Resources: IVF card game.</p>	<p>Note – This resource is flexible and pupils can assume the roles all the way through, or just assume the roles for the first read out. If pupils do assume the roles all way through make sure you get them to express their personal opinion at the end of the discussion and in the plenary</p> <p>Plenary: 10 minutes Vote as to which position they agree with most if there is one? Why? Which arguments were the most persuasive?</p> <p>Suggested Homework: Students (in groups) make a poster/collage arguing for a different characters' position.</p>	

Meet the Scientists

Lesson	Format	Suggested adaptations
<p>Lesson 31 - Meet the Scientists Scientific speed-dating, a fun, exciting way to 'meet' the scientists</p> <p>Learning objective:</p> <ul style="list-style-type: none"> • Get to know the scientists in-depth in structured way <p>Other learning outcomes:</p> <ul style="list-style-type: none"> • Stimulate interest and raise questions they may want to ask. <p>Curriculum points covered:</p> <ul style="list-style-type: none"> • Select, organise and present scientific information. • Evaluate scientific information and make informed judgements from it <p>Resources: Questions sheets from this pack and either allow pupils to visit the website (if in ICT suite) or give out downloads of scientists' information pages. Paper and pens for drawing scientist.</p>	<p>Starter: 10 minutes</p> <ol style="list-style-type: none"> 1) Tell students they will be getting to know the scientists. Split students into 5 groups and number them 1-5. 2) Ask them to think about what they imagine scientists are like. Draw a scientist as a group. Starting at the top, each person in group draws different part of scientist (head, shoulders, etc) without others seeing, folds over what they have done and passes it on (like a game of consequences). 3) Unfold and look at the pictures – any common themes? Do they think scientists are really like that? 4) Assign each group a scientist and read out their name and job role. 5) Remind about what criteria they picked in the lesson 1 <p>Main: 30 minutes</p> <ol style="list-style-type: none"> 1) Read info sheet/site as a group. 2) Split each group in half, As and Bs, to end up with 10 groups in total. As are the scientists, using the sheets they were given originally and 5 B groups go around and question scientists using assigned and own questions. Scientists use sheet to answer. If the answer is not available the group can speculate as to what the answers could be. Pupils have 3 minutes with each scientist. <p>Plenary: 10 minutes</p> <ol style="list-style-type: none"> 4) All the students discuss the scientists as a class. Go over the questions for each scientist to make sure they got the right answers. Did they like the questions? Did they feel they got to know the scientists? Would they ask similar questions or others? <p>Suggested Homework: Think of three questions to ask the scientists and ask them on the website. Write a profile of famous scientist using books/internet or given info - Stephen Hawking profile – http://www.hawking.org.uk/text/about/about.html</p>	<p>Support: Do the activity as a class with the five scientists at the front. 2 or 3 play each scientist.</p> <p>Extension: Concentrate more on their own questions rather than assigned questions. Go back onto the site and submit some questions for scientists.</p>

Intro to event

Lesson	Format	Suggested adaptations
<p>Lesson 3ii - Intro to event (This is a simpler alternative to lesson 3i as a way of getting to know the scientists)</p>	<p>Starter: 5 minutes Recap the event, and what can be done on the site. Can also use 'fold game' starter from lesson 3i.</p> <p>Main: 35 minutes</p> <ol style="list-style-type: none"> 1) As a class brainstorm suitable questions that they want to ask to get to know the scientist. Get students to write them all down. Appoint a question to each pair to ask when they use the site. 2) Take students online, (in pairs or threes in ICT suite or all look at site together on projector) and read profiles of all the scientists and the info on the site. See if the impression they get of them is different from the last lesson. Decide which scientist they like the best. 3) Write down three interesting things they find out on the site. 4) Pose brainstormed question, and one of their own for the scientists to answer when they use the site. 5) Present their 3 interesting things to the class, and which scientist they like best. <p>Plenary: 5 minutes Discuss what they found out – did anything surprise them?</p> <p>Suggested Homework: See if the scientist has answered. If so write down answer. Pick one of the scientists. Find out about their area of science and write a page about it, including:</p> <ul style="list-style-type: none"> - What they study in that discipline - The kind of places it is carried out - The most famous of those places. - A famous scientist from that discipline 	<p>Support: Give more assistance in brainstorming questions. Use the criteria from lesson 1 and assigned questions from lesson 3i as a basis.</p>
<p>Learning objective: Get to know scientists and realise they are normal people!</p> <p>Other learning outcomes:</p> <ul style="list-style-type: none"> • Stimulate interest and raise questions they may want to ask. • Opportunity to interact with real scientists. 		<p>Extension: Allow more freedom when looking at the site. Write a short paragraph about what they find on the site to present back to the class. Justify more clearly which scientist they like best.</p>
<p>Curriculum points covered:</p> <ul style="list-style-type: none"> • Select, organise and present scientific info • Evaluate scientific information and make informed judgements from it. 		
<p>Resources: Pupils own pen and exercise book. ICT suite or computer and screen projector class all do together with teacher leading.</p>		

Live chat

Lesson	Format	Suggested adaptations
<p>Lesson 4 - Live chat 'Chat' to real scientists online in real time.</p>	<p>Starter: 5 minutes Go over criteria from lesson 1, assigned questions from session 3i and the brainstormed questions from lesson 3ii. In this lesson they can get to know the scientists better, in real time! Remind they have a big responsibility because they get a vote to decide who gets the money! NB Scientists are busy and working full time, it's likely not all will be able to make every chat booked so try to adjust the classes' expectations. The important thing is they get to 'meet' real scientists and find out they are human too!</p>	<p>Support: Use brainstormed questions and write down the answers to them.</p>
<p>Learning outcomes: Humanise scientists and science</p>	<p>Main: 35 minutes 1) Go online and have a live chat with the scientists. Ask questions as individuals, pairs or small groups. 2) As groups of 4, write a summary of what they have learnt and present to class.</p>	<p>Extension: Not so much reliance on assigned questions.</p>
<p>Other learning outcomes:</p> <ul style="list-style-type: none">• Get to know the scientists• Prompt thought about questions• Opportunity to interact with real scientists	<p>Plenary: 10 minutes Sum up what they know about the scientists. Any other questions they didn't get to ask? Did they learn anything that surprised them? Remind them they can pose questions at home if they have the internet.</p>	
<p>Curriculum points covered:</p> <ul style="list-style-type: none">• Apply principles and concepts to unfamiliar situations• Make informed judgements about science	<p>Suggested Homework: Pick one of the scientists' disciplines. Find out more about a controversial issue facing that discipline. Base it on topics covered in live chat if any arose. If none arose write about the biggest issue facing that discipline.</p>	
<p>Resources: Live chat booking (important!). ICT suite (or whole class do it together via projector screen).</p>		

Interactive quizzes

Lesson	Format	Suggested adaptations
<p>Lesson 5 – Interactive quizzes Online quizzes to test comprehension and understanding</p> <p>Learning objective: Check understanding of info sheet topics/HSW issues, as below.</p> <p>Other learning outcomes: All: Develop student’s HSW skills, engage their interest. A-C: Test students understanding of the info sheet topics C: Prompt harder questions to scientists (i.e. on key data handling concepts – validity, reliability, accuracy, etc) D: Check and develop understanding of key HSW principles E: Practice at separating fact and opinion</p> <p>Resources: ICT suite or projector, or printed out paper copies of quizzes.</p>	<p>Starter: 5 minutes Students know the scientists and what the scientists do. See some real life examples of what scientists do, and the things they have to think about.</p> <p>Main: 40 minutes In ICT suite, on paper copies, or as homework. Get students to do quizzes (as many or few as you think they can manage), individually or in small groups (online versions are interactive and give correct answers and score).</p> <p>One on each info sheet:- A) Drug development B) Generating electricity C) Data handling</p> <p>Further quizzes on:- D) What is science? E) Fact vs. opinion</p> <p>Plenary: 5 minutes How did they do on quizzes? Did anything surprise them?</p> <p>Suggested Homework: Complete further quizzes Find a newspaper article about something to do with science (possible sources in ‘more info’ section on website). Highlight facts in one colour; opinions in another.</p>	<p>Support: Set only one quiz for the lesson AND/OR Have info sheets in front of them when answering (for quizzes A-C) AND/OR Complete quiz(zes) as a class.</p> <p>Extension: Set more quizzes (five available)</p>

Project analysis

Lesson	Format	Suggested adaptations
<p>Lesson 6 – Project analysis A structured way to look back on the project and analyse it</p>	<p>Starter: 5 minutes Show of hands, did they enjoy it? Initial thoughts on why/why not? What do they think about science now?</p>	<p>Any: Students can also fill in a feedback survey online to let us know what they think of the event and if/how they think we should change it.</p>
<p>Learning objective: To reflect on and consolidate own learning during the project.</p> <p>Other learning outcomes:</p> <ul style="list-style-type: none"> • To consider the benefits of the project and highlight problems or difficulties • Empower students (it's not perfect, their opinion is useful!) • Give feedback so project can be improved in future • Consider purpose – does it matter if their favourite didn't win if they learnt things and enjoyed it? 	<p>Activity 1: 10 minutes Log on to the website, go to 'my science words'. Students will see a list of the words they chose in lesson 1. Do these words still reflect what they think about science? Give students 5-10 minutes (without discussion at this stage) to add new words they now think, or take away words they feel no longer apply.</p> <p>Activity 2: 30 minutes</p> <ol style="list-style-type: none"> 1. Students can display on-screen (or print out if desired) the list of changes (i.e. the words they've added and the words they've taken away). 2. Get students into pairs to discuss these lists - why those changes? What made them change their minds? 3. The pairs join up into fours and compare notes. Are there any common themes? How have their ideas about science changed and why? 4. Groups of four feed back to the class. Again, are their common themes? What's caused the changes? 	
<p>Curriculum points covered:</p> <ul style="list-style-type: none"> • Society and individuals make decisions on issues relating to science and technology • Different issues need to be weighed up and this can be difficult 	<p>Plenary: 5 minutes Quick show of hands and discussion. Would they want to do it again? Would they want to change the event?</p>	
<p>Resources: Access to the I'm a Scientist website.</p>		

How does all this fit together?

1. **“You’re the Judges”** leads students through thinking about the decision they face and draws out the wider issues. It means that instead of just voting for the scientist with the nicest jumper, they have thought about deeper issues, and feel some ownership of the criteria they have come up with.
2. **“IVF debate”** models debate and discussion in a structured way and starts to build their discussion (and listening!) skills.

“The IVF debate went on for two lessons and they started defending their viewpoints which they wouldn’t have done before. They also began to see all sides of the argument rather than have a blinkered approach.”

Rachel Cockburn, teacher, Hetton School, Sunderland

3. **Interaction with scientists and voting** gives students practice at using these skills and giving them a real say about something gives them a reason to engage.
4. **Other accompanying resources** extend this further, raise different HSW issues, and give more opportunities for practice.

“It really promoted higher thinking skills”

Kirsty Price, teacher, Sherwood Hall School

	Lesson	Learning Outcomes
1	You’re the judges! Choose and rank criteria by which to judge the scientists	<ul style="list-style-type: none"> • Introduction of HSW • Consider ethical, social and practical aspects of science.
2	IVF Debate Debate a controversial topic in a structured way	<p>HSW</p> <ul style="list-style-type: none"> • Developing an argument • Societal aspects of scientific evidence • Using data to draw conclusions • Develop debate and discussion skills <p>Substantive</p> <ul style="list-style-type: none"> • To evaluate the benefits of, and the problems that may arise from, the use of hormones to control fertility, including IVF
3 i OR ii.	<p>Meet the Scientists “Scientific speed-dating”, ‘meet’ the scientists in a fun and dynamic way</p> <p>A simpler alternative to lesson 3i as a way of getting to know the scientists</p>	<ul style="list-style-type: none"> • Realise that scientists are ‘real people’ they can relate to • Find out about up-to-date science
4	Live chat ‘Chat’ to real scientists online in real time	<ul style="list-style-type: none"> • Feel a personal connection to scientists • Have fun! • Sustain and develop their enjoyment of, and interest in, science
5	Interactive quizzes Test comprehension and understanding using online quizzes	Various – see details in lesson plan
6	Project analysis Look back on the project and analyse their learning in a structured way	<ul style="list-style-type: none"> • Society and individuals make decisions on issues relating to science and technology • Different issues need to be weighed up and this can be difficult

