

SCIENCE WEEK

#scienceweek

7-14 Nov 2021

Supported by Science Foundation Ireland

FUTURE FASHION

ABOUT CREATING OUR FUTURE



Creating Our Future is a Government of Ireland campaign to stimulate a national conversation between everyone in Ireland on their ideas on how to make our country better for all. While we might not always think about it, research and innovation affect nearly every part of our lives. The COVID-19 pandemic in particular has shown the importance and value of research and innovation in our lives – medically, socially, politically, and economically. Ideas are the starting point for all research and innovation. Anyone, anywhere, can have an idea that inspires research and innovation. It could be based on an opportunity or challenge that someone has identified in their own life, for their community, for Ireland or for the world. Or it could be based on a topic that someone is curious or passionate about.

Creating Our Future wants to hear them all – in particular from our young people. All ideas will be captured and will help inform the future direction of research and innovation in Ireland.

Secondary school students are invited to take part in this national conversation on research. Research carried out in the present will have an impact on your future, and you have the opportunity to have your say on research that will help to make a better future for all in Ireland.

Some of us are excited to go back to exactly the way things were before the pandemic, others have found recent times to be a relief and want to keep the changes we've experienced, others want to hold on to some of the changes but not all of them.

Our impact on the environment has improved in so many ways, such as air quality, and yet deteriorated in others, such as the use of single-use plastics. Remote working is the new norm for a significant number, this has directly impacted on quality of life in the positive and the negative for so many, for others it has resulted in a serious hit to livelihoods as footfall in office areas drop. Throughout this journey, the public has been largely united in turning to science for the data to inform decisions for today, and to bring hope for tomorrow.

Use these discussion toolkits in the weeks leading up to Science Week to debate and discuss STEM topics with your class that will affect our future, from changes in the fashion industry to using technology to enhance our cities and communities.

During Science Week, submit your own idea to creatingourfuture.ie to help researchers in Ireland to create a better future.

This toolkit provides background and discussion stimulus on future fashion, including more sustainable alternatives to fast fashion and how science and technology can improve the situation.

There are video and news sources linked throughout the document to help stimulate the conversation.

INTRODUCTION AND BACKGROUND

Over the last century, the production of fashion has increased at phenomenal speed, leading to what we now know as the fast fashion industry. This was accelerated by manufacturing techniques such as Just-In-Time (JIT) production, the outsourcing of labour to developing countries, and reduced shipping costs. These global shifts in production methods, satiated consumer's appetite for cheap fashion, fast.

The fast fashion industry adopts a 'take, make, waste' economic model, using our planet's resources to make disposable garments with a short shelf life.

However, we now realise that these production practices are having a detrimental effect on our environment. The fast fashion industry has become one of the most environmentally damaging industries in the world. In the last 15 years, clothing accounts for 60% of all textiles produced. Much of this clothing is fast fashion, cheaply produced to meet a passing fashion fad, and discarded after too few wears, no longer deemed fashionable when the next trend arrives.

Do you ever ask yourself, where does yesterday's fashion go exactly? Regrettably, much of these unwanted clothes end up in landfill. Only 1% of textiles worldwide are actually recycled.

In Ireland, we send 63,000 tonnes of textiles to landfill (that's about two-and-a-half times as heavy as The Statue of Liberty) - each year!

Why are we overproducing? Can we stop? Can we find new ways of producing and consuming fashion that will not be as damaging to our natural resources and planet?

The answer is, yes! One aspect of a more sustainable future of fashion lies in innovative applications of recent technological trends such as Artificial Intelligence, Blockchain and the Internet of Things (IoT). Such technologies can help us move toward a circular fashion economy. Circular Fashion are clothes, shoes or accessories that are designed, sourced, produced and provided with the intention to be used and circulated responsibly and effectively in society for as long as possible.

Developed in collaboration with:



The circular economy is an important part of the solution, but we must also remember that in reality quite a bit of the materials used in clothes are not reusable, so we need to find ways to repair and extend the life of all the clothes we have on earth already as the first port of call. Buying 'vintage' or second hand clothes that already exist (adverts.ie, depop, Thriftify etc.) is the best thing you can do to help reduce the impact of fashion.

While the technologies listed throughout can and will play a part in the solution for sure, we must keep in mind that overall the large majority of carbon emissions occur during the production process, when a piece of clothing is made. So we need to make less.

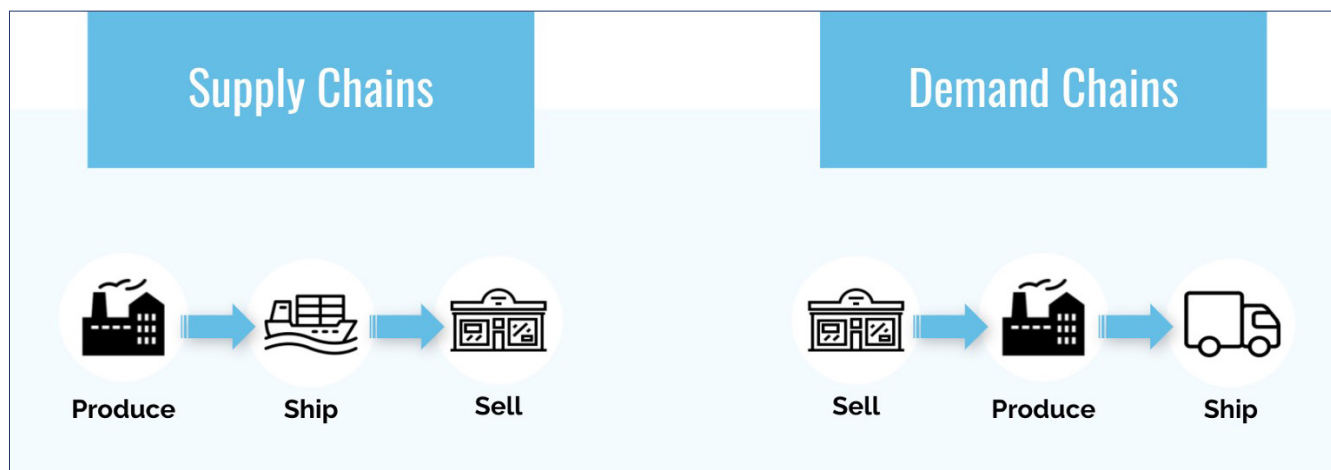


FASHION PRODUCTION & SUPPLY CHAINS

Fashion is facing an existential crisis. Consumers are demanding clothes that are personalised, customised, ethically and sustainably produced and delivered rapidly.

Data and information are needed to serve these needs and to power the technologies listed above, so companies need to 'digitise' their supply chains, meaning they need to use computers to

track how their products are produced (you'd be surprised how many supply chains are still manual and not done in computers across factories globally). The approach of 'produce-ship-sell' is dying and there needs to be a shift toward a demand-driven model where companies sell-produce-ship to reduce waste.



The fashion companies that focus on gathering good consumer data directly from customers in unique and engaging ways, can then adjust their supply chains accordingly with proper digitisation.

Companies that make products and ship directly to customers (known as Direct to Consumer or D2C) are able to reduce a lot of the marketing and retail costs that increase the price, but even more needs to be done around local manufacturing. Microfactories could be a great option where a much smaller amount of products are made specifically for people once they have ordered, located near where the shoppers live instead of shipping them around the world.

In Asia, Pinduoduo has laid out how effective the demand driven model can be, going from zero to 800 million customers in six years and has seen more fashion grow on their platform recently. They allow people to 'buy as a team' or 'buy individually', which helps companies only build what is needed and a more efficient way of buying.

Blockchain & Fashion

Blockchain in its simplest form, is a chain of blocks which contain information. How is this transferable to the fashion supply chain? Well, it can offer an added level of transparency to the fashion supply chain, so the end user can be assured exactly where their garment came from, and that ethical labour and production processes happened along each step of the garment's production journey. This will help to eliminate the possibility of "greenwashing".

Greenwashing is a term used whereby organisations mislead their audiences by making them believe they are environmentally friendly and sustainable, when in fact they are not. Blockchain would be part of the solution to this, alongside other options such as introducing legislation regulating the current practices of the fashion industry.

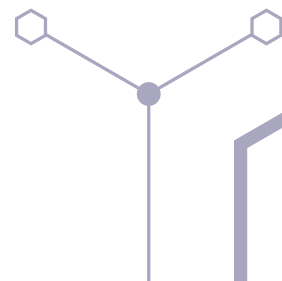
However, blockchain comes with its own share of the carbon footprint (you can read the below article about the carbon footprint associated with an application of blockchain that you may have heard about, mining bitcoin and other cryptocurrencies).

[Read more](#)

Artificial Intelligence & Machine Learning Technology

Traditionally fashion buyers put a lot of footwork (including carbon footprint!) into 'cool-hunting' what the next big trend will be for their fashion collections. Now machines can halve that workload using their customer behaviour data to help with trend prediction and demand forecasting. This would mean that by using the power of AI to help with forecasting, fashion brands can more accurately predict what consumers will want, leading to less unsold stock and therefore less industry waste.

Curious to understand this more? Take a look at Stylumia platform to see how they help fashion houses use data to plan next season's trends: <https://www.stylumia.ai/>



DISCUSSION STIMULUS

Often we think we are doing acts of goodwill by dropping off clothes we no longer want at our local charity shop. And while our intentions are good, unknown to us, we are contributing to the global environmental disaster.

Did you know that only a fraction of those donations end up being sold in the charity shop? In Ireland, only half of what we donate to charity shops or clothes banks actually end up on the shop floor.

And what happens the rest? They are shipped off in bundles to third world countries. Again, while this seems like another act of kindness, it is actually creating landfills of junk and escalating environmental catastrophes in developing countries. Inadvertently, we are outsourcing our overconsumption and waste problem to already disadvantaged communities.

This video from BBC Earth introduces the impact of fast fashion on our environment



Source: YouTube - BBC Earth

'The Environmental Disaster that is Fuelled by Used Clothes and Fast Fashion' – Foreign Correspondent (30 minute video)



Source: YouTube - ABC News In-depth



The True Cost of Fast Fashion
– The Economist (6 mins
video)



Source: YouTube - The Economist

The Future of Fashion –
The Economist (2mins
23secs)



Source: YouTube - The Economist

Sustainability and the Fast
Fashion Industry | Junk
Kouture Masterclass
(10 mins)



Source: YouTube - junkkouture

Guiding Questions

1. Bundles of clothing are sent to third-world countries in unfit condition – why do we think another person would want soiled, unwearable clothing? What else could we do with such garments/materials?

Discussion around mending, remaking, repurposing, and recycling. Learn new crafting skills to breathe new life into material

Suggested viewing:

How to Hand Manipulate Recycled Textiles |
Junk Kouture Masterclass:



Source: YouTube - junkkouture

Demonstrates how recycled Nespresso coffee capsules and plastic bottles can be manipulated to create a wearable garment. This is just one way in which materials can be used to make something new. Why not have a think about ways you could repurpose waste from fast fashion?

2. So what can we do instead to combat overconsumption of cheap, fast fashion? Can we sacrifice a little bit of fashion and buy responsibly? What are the consequences of such sacrifice?

Discussion around questioning our purchases, and why we purchase? Consumer behaviour-related discussion. Is it due to pressure from social media - #OOTD ('Outfit Of The Day' mentality). Do we want to fit in? Stand out? And why is this important to our sense of self? How could we combat building our identity on consumption patterns and material goods?

Suggested viewing:

Sustainability and the Fast Fashion Industry | Junk Kouture Masterclass (10 mins)



Source: YouTube - junkkouture

3. Some would say that there are enough clothes on the planet already if we had more efficient cultures and systems. Can we do a better job of extending the life of every piece of clothing that already exists but only buying 'pre-loved' clothes?

Instead of donating to a charity shop, the better solution is to sell it yourself online or give it to a family or friend. Even when we buy gifts for others, we need to think about buying something that has already been made.

4. Fashion retailers are very aware of the growing problem of overproduction. And yet they have built a business model around producing cheap, fast fashion and having 'new' fashion available every other week. If you were advising a fast fashion brand, how could they continue to keep you as a customer, yet provide alternative ways for you to engage with the brand?

Discussion here around how brands can offer experiential consumption opportunities rather than material goods. Do teenagers really want 'stuff', or is it enough to be associated with a brand and it's inferred meaning through association and experiential purchases. Or can the brand offer ways for consumers to more easily repurpose their garments once they are finished with them?

This discussion around solutions for fashion retailers can lead on to discuss the future of fashion and how brands can innovate and stay relevant (without physically producing garments) by using technology. This can be explored using the case study of recent Balenciaga X Fortnite collaboration. Fascinating example of how luxury brand Balenciaga innovates to stay relevant with younger demographic through gaming, designing skins and accessories for digital Fortnite characters. Such collaborations can be seen as an example of how fashion brands could stay in business, but in a new, digital way.



Balenciaga X Fortnite (Sept 2021) collaboration discussed here:

[Read more](#)

Balenciaga X Fortnite Real-world immersive 3D Billboard experiences in key fashion capitals:



Source: YouTube - Contagious

5. Explore the history of retail with students, leading to a discussion on the future of retail
- Discuss how the retail experience has evolved. Exploring retail technologies, discuss together how retail has more recently changed, and how students think it may continue to change in their own lifetime. Discuss how they feel about these changes.*
- Excellent resource with many examples of well-known fashion brands collaborating with tech brands to innovate fashion:

[Read more](#)



6. How can science and technology help to improve the current fast fashion situation?
- Students can draw on many ideas discussed in previous questions/videos to suggest how technology can improve fast fashion.*
- In terms of science, a conversation around fashion, biodiversity and bioengineering could emerge, discussing how fashion designers need to find 'new' materials to make clothes as the earth's natural resources cannot sustain the rate at which fashion is wasting it.*
- Useful article discussing why fashion and science must collaborate to combat climate change, pollution and the decline of biodiversity:

[Read more](#)

Entertaining short clip from The Late Late Show of young students discussing how they made their Junk Kouture fashion designs using recycled materials, including dried out orange peels, Coca Cola aluminium, and computer parts:



Source: YouTube - RTÉ - IRELAND'S NATIONAL PUBLIC SERVICE MEDIA

Additional Resources

- Recommended documentary (2mins 38secs): 'The True Cost'

Trailer:

Watch Here

- The Journal.ie (10 minute read): 'Cheap clothes are cheap clothes, but fast fashion is the real environmental problem':

Read More

- If students are motivated to become future circular fashion designers of tomorrow, encourage them to check out the Junk Kouture competition:

Watch Here

(1min 49secs)

If you are interested in organising a Q&A with one of our researchers on this topic please contact us at scienceweek@sfi.ie

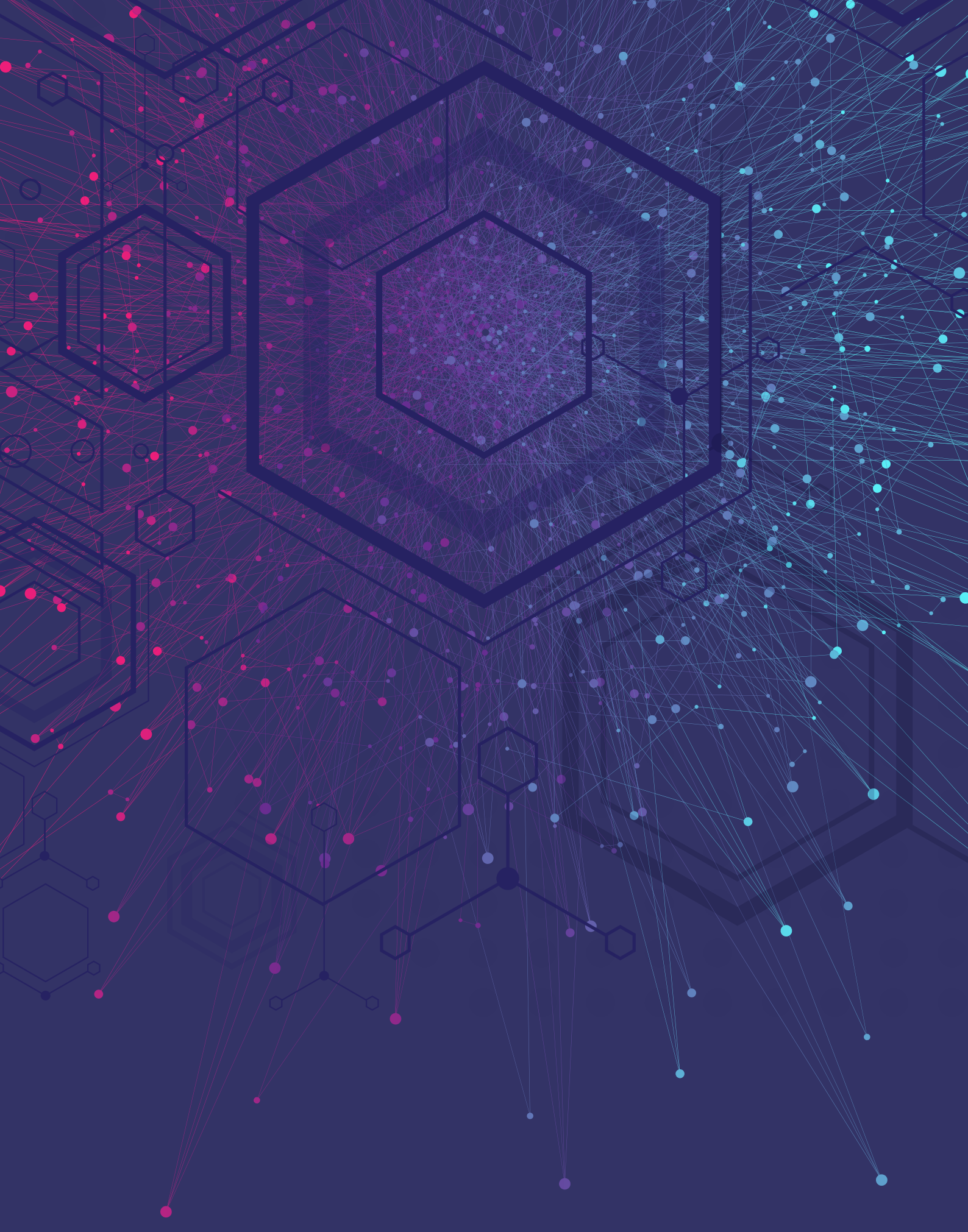


Ireland's Biggest Brainstorm - have your ideas heard!

Now that you have discussed future fashion, take five minutes to think of an opportunity or challenge you see for yourself, your community, Ireland or the world on this topic.

These can be captured in the classroom using this [template](#) and emailed to creatingourfuture@sfi.ie or if you have access to a computer lab log on to creatingourfuture.ie and submit your idea directly on the website.





Science Foundation Ireland
3 Park Place,
Hatch Street Upper, Dublin 2.
scienceweek@sfi.ie

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For what's next

CREATING
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FUTURE