

The word "Engage" is written in white, bold, sans-serif font inside a dark teal rounded rectangle.

Engage

Teacher Conference

Making STEM Accessible

Join Em Diserens, STEM Partnership Programme Manager at Lightyear Foundation to look at inclusive learning techniques and how they can be applied to STEM lessons.

**Em Diserens, STEM Partnership Programme
Manager, Lightyear Foundation**

Welcome, please be aware:

- Talks are recorded
- You can ask questions in the chat throughout
- There will be time for questions at the end





lightyear
foundation

Making STEM Accessible

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Housekeeping

- Accessibility
- Cameras and microphones
- Asking questions
- Taking breaks
- Resources





Quick overview

- Introduction to Lightyear Foundation
- The social model of disability
- Inclusive and accessible science - practical examples
- Top tips & resources
- Questions and discussion





Lightyear Foundation

- Immersive Sensory Science
- Lightyear Labs and Lightning Labs
- Work Inspiration Trips
- Role Models
- SEN in STEM network
- Training and Consultancy
- Mission Control (coming soon)

1.5 million children in England have special educational needs but only 4.3% of pupils have an EHCP





The social model of disability

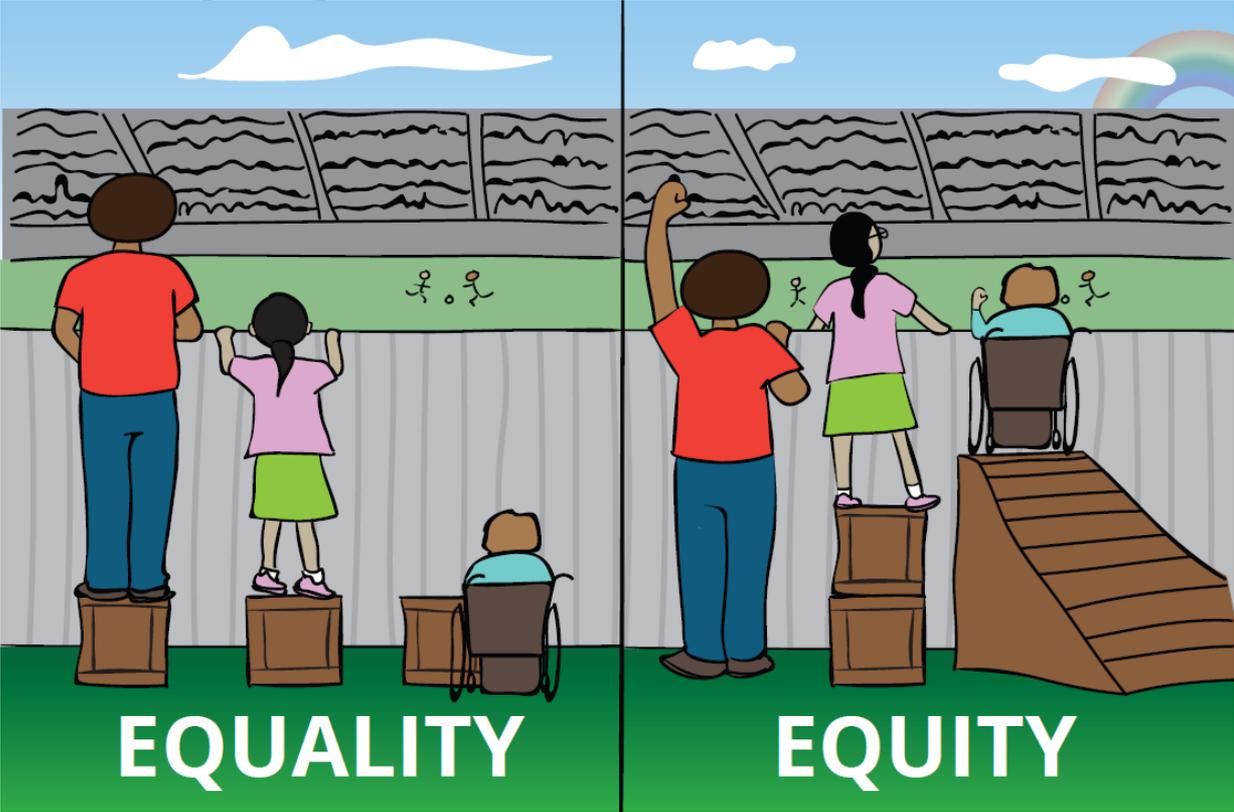
The social model of disability says that people are disabled by barriers in society, not by their impairment or difference.

Barriers can be physical, such as a building only having steps to get in.

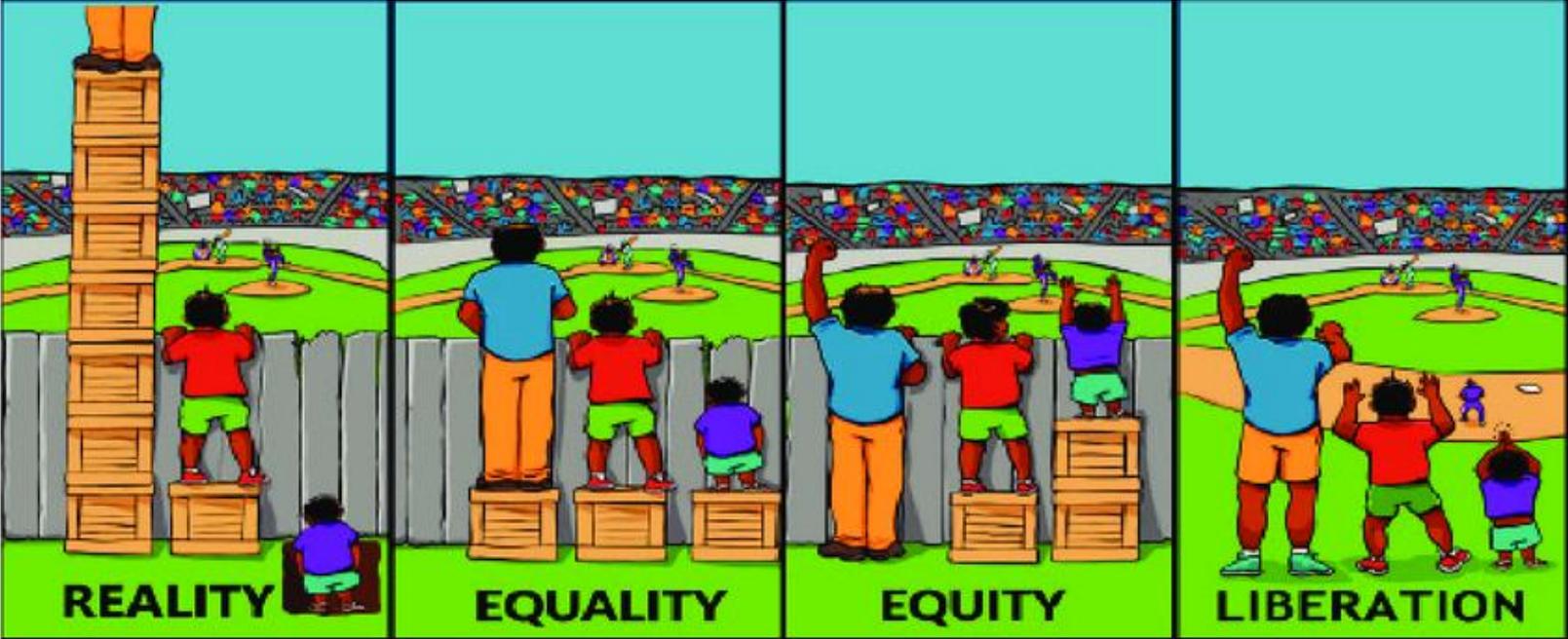
Or they can be caused by people's attitudes to difference.



Equality vs Equity



Equality vs Equity





Different communication styles

- Speech
- Non-verbal students (PECS, gestures, apps etc)
- Makaton
- Widgit symbols and some good advice
- BSL and guidance on working with interpreters
(BSL dictionary & BSL science glossary)
- Communication devices



Sample planning - constellations



Mobility	Dexterity - different sized and shaped beads for the threading activity
Visual	Providing tactile constellation cards for visually impaired pupils (this could be as simple as split pins and elastic bands or as fancy as 3D printed)
Auditory	Subtitles on any video content being shown, positioning in the room, BSL etc
Neurodivergence	Covers such a broad range (e.g. ASD, ADHD, tourettes) it's difficult to give examples for all. It may include pre-teaching key vocabulary, supporting with widgit symbol vocabulary cards.
Communication	 The Makaton sign for star is to raise your closed dominant hand and quickly open it out like a starburst.



STEM Activities/Experiments

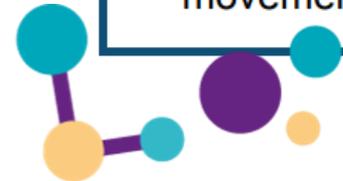


Earth and space

Statutory requirements

Pupils should be taught to:

- describe the movement of the Earth, and other planets, relative to the Sun in the solar system
- describe the movement of the Moon relative to the Earth
- describe the Sun, Earth and Moon as approximately spherical bodies
- use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.



Earth and space - what could this look like for SEND pupils?



- Going on to the playground at different times of day to look at their shadows
- Use different sized spherical objects to map out the solar system



Earth and space - what could this look like for SEND pupils?



- Explore different textures through playdough planets and drawing planets with shaving foam (and sensory bags for those who don't want to get their hands messy)





Lightyear Lab Example

- Send kit box and kit list in advance
- Start with greetings & recap
- Kit check
- Lock-step instructions
- Repeat key vocabulary
- Opportunities for sharing achievement
- Lots of open questions
- Summarise at the end



Lightyear Lab - Astronomy Lab



Some final top tips!



- You know your students best! You know your students interests and abilities so are best placed to develop and deliver a science lesson that will really engage them
- You don't need to start from scratch
 - [Lightyear Foundation](#)
 - Dr Sarah Bearchell - [free resources for SEND students](#)
 - [Science For All](#)
 - Primary Science Teaching Trust - [lesson plans](#)



Some final top tips (cont.)



- You're not in this alone. There are some great guides, networks and events to help build your confidence in teaching science.
 - [Lightyear Foundation](#) - training courses for schools
 - [STEM learning](#) - [special schools conference](#)
 - British Science Association - [Engage Teacher Network](#)
 - The Association of Science Education - [online CPD course](#)
 - [Explorify](#)
- Think about science in its broadest sense - [cooking](#), [music](#), [PE](#)



Some final top tips (cont.)



- Relate the content to your student's real life experiences. Whilst the science capital teaching approach wasn't developed with SEND pupils in mind, it makes for an interesting read.
- Get creative! Science concepts could be taught through dance or movement, through story telling or drama.
 - Flamingo Chicks - science themed accessible dance classes



Questions & Feedback



- Anything you'd like to discuss in more detail?
- Questions?
- Share your ideas, successes or challenges
- Anything more we can do to support you?



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Thank you

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