# Increasing female student uptake of STEM

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@GirlsCount_2

- Research and Strategies
- Insights into AMSP
- Break down barriers
- Smoothing transition
- Advice to attract and support

# Aims of the AMSP

- Increase participation in AS/A level Mathematics and Further Mathematics
- Increase participation in Core Maths
- Improve the quality of mathematics teaching
- Increase the number of students studying STEM degrees and apprenticeships

# Reasons for choosing Maths post-16

## PRIOR ATTAINMENT

Relative attainment – girls as ‘all-rounders’ issue

## ENJOYMENT

More influential with girls

## PERCEIVED COMPETENCE

Self concept lower in girls

## INTEREST

More important to girls’ choices

## AWARENESS OF UTILITY

Personal goals

- KEY INFLUENCERS
- STEREOTYPES
- ELITEST
- UNCONSCIOUS BIAS
- BACKGROUND

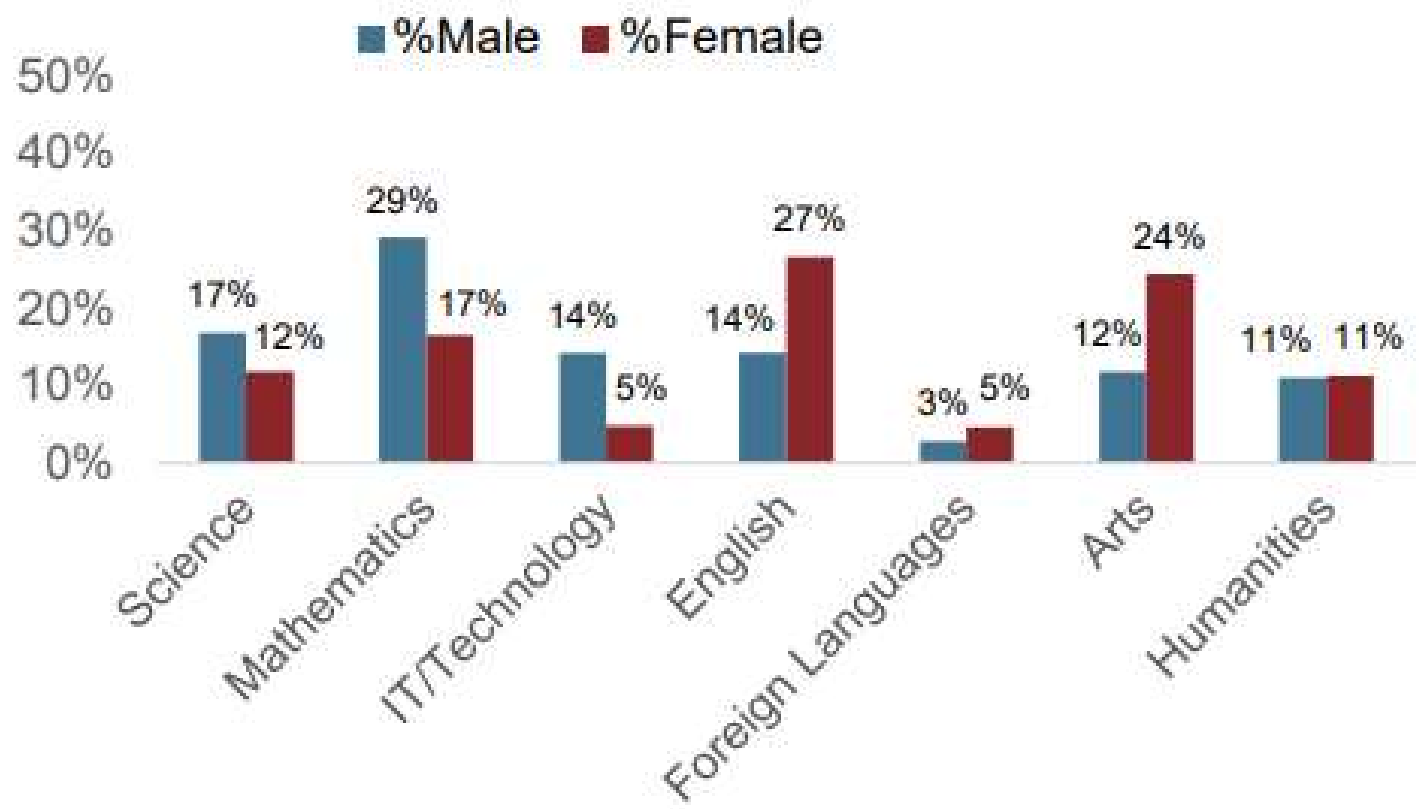
Gender and participation in mathematics and further mathematics A-levels: a literature review. Cathy Smith. IoE. UCL

Maths is difficult.
I’m finding it difficult.
It’s supposed to be difficult.

I can’t do it.
It’s me that’s the problem.
It’s not the maths that’s difficult,
It’s my abilities that are limiting me.

# Attitudes towards STEM subjects by gender at KS4

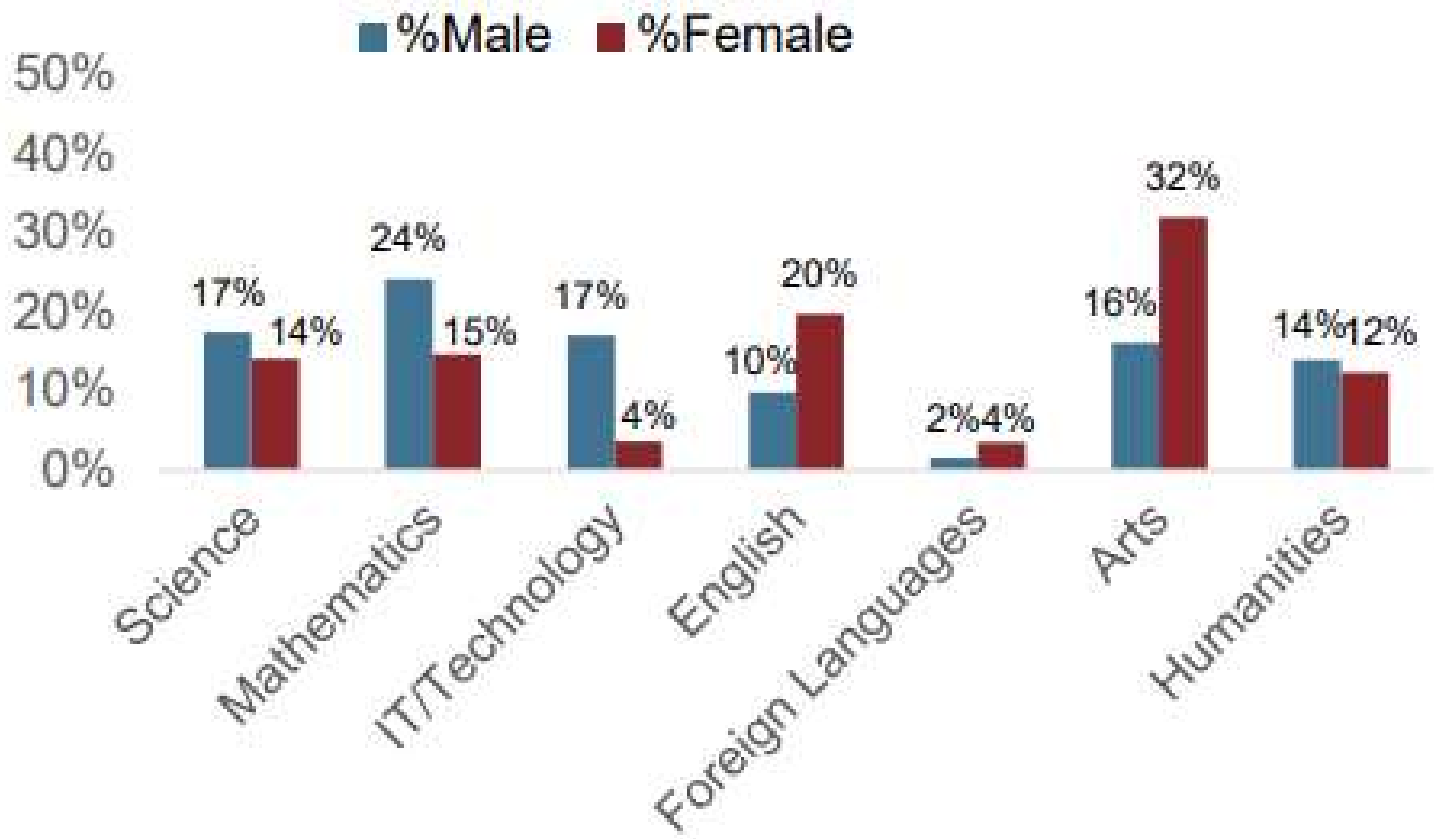
**Figure 2. Subject that pupils felt that they personally were best at**




Source: Longitudinal Study of Young People in England: cohort 2, wave 3
Unweighted base = 9,316

# Attitudes towards STEM subjects by gender at KS4

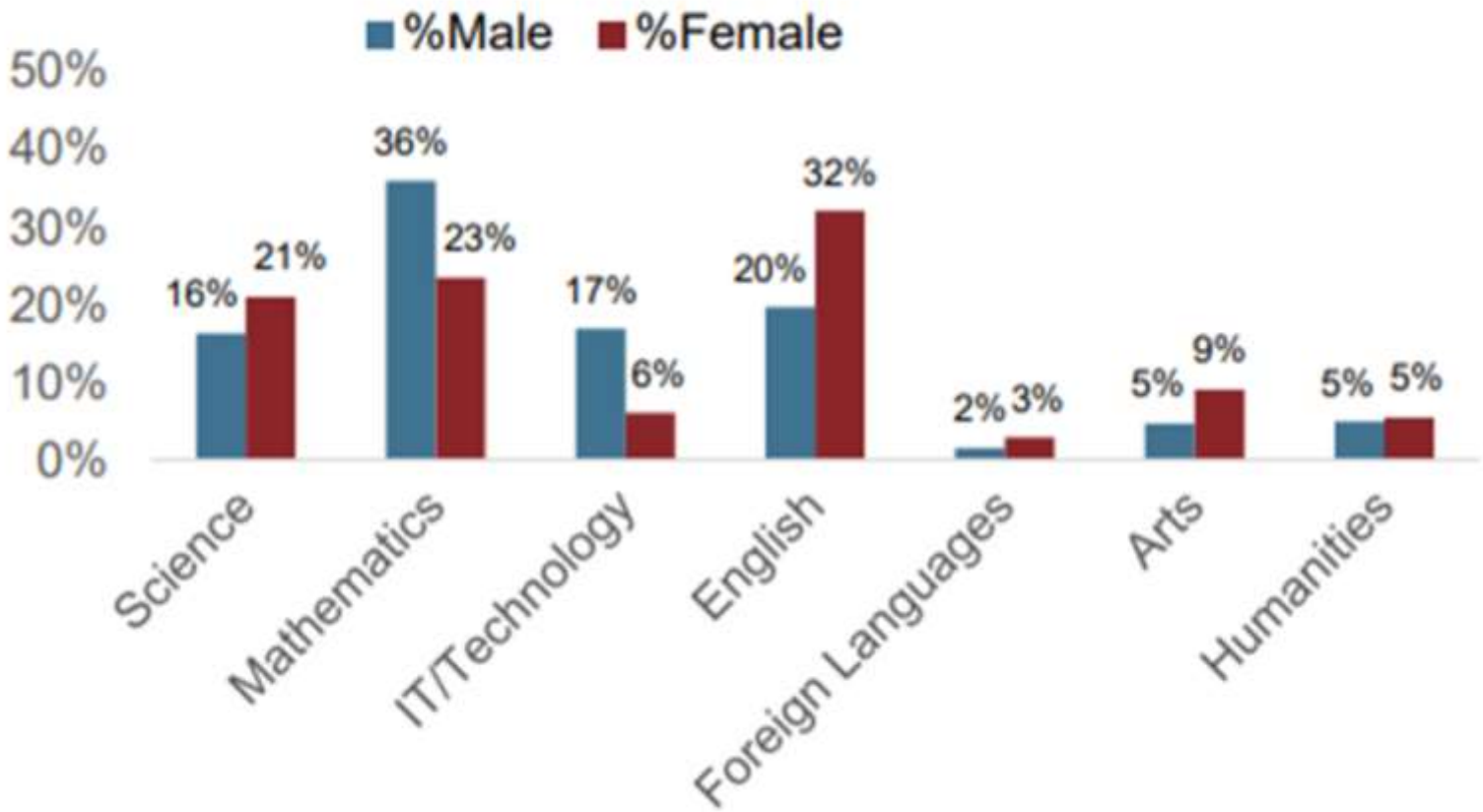
**Figure 1. Subjects that pupils ranked first for enjoyment**




Source: Longitudinal Study of Young People in England: cohort 2, wave 3
Unweighted base = 9,316

# Attitudes towards STEM subjects by gender at KS4

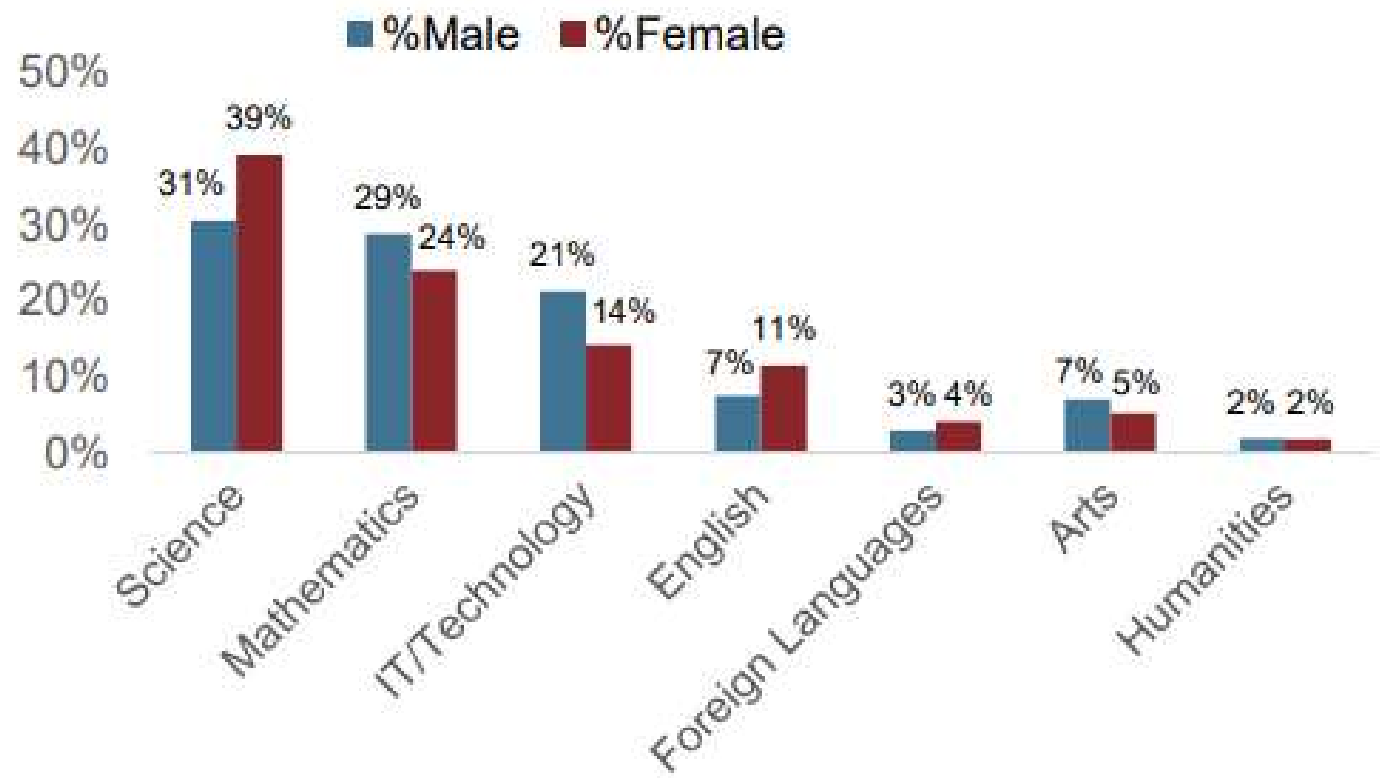
**Figure 3. Subjects that pupils thought were most likely to lead to a job**



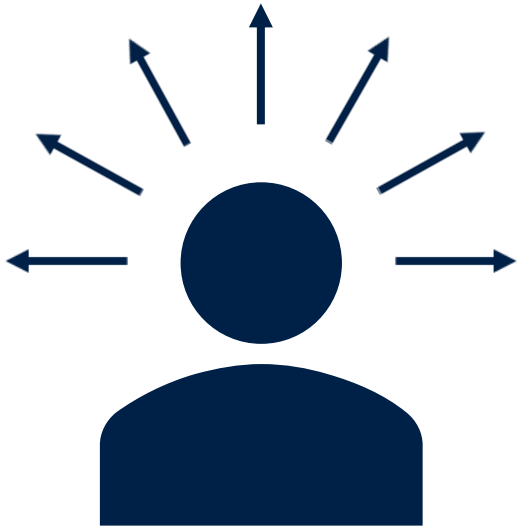

Source: Longitudinal Study of Young People in England: cohort 2, wave 3
Unweighted base = 9,316

# Attitudes towards STEM subjects by gender at KS4

**Figure 4. Subject that pupils thought could yield highest salary.**




Source: Longitudinal Study of Young People in England: cohort 2, wave 3
Unweighted base = 9,316



Cognitive Bias

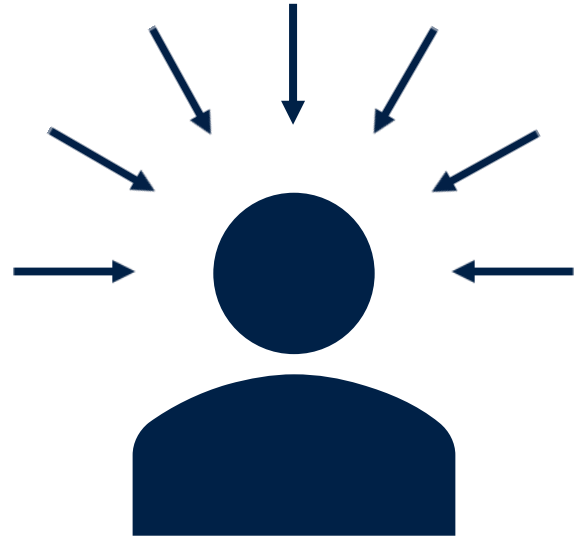
Belief

# Strategies to tackle low self concept

Effort is the most important factor for success

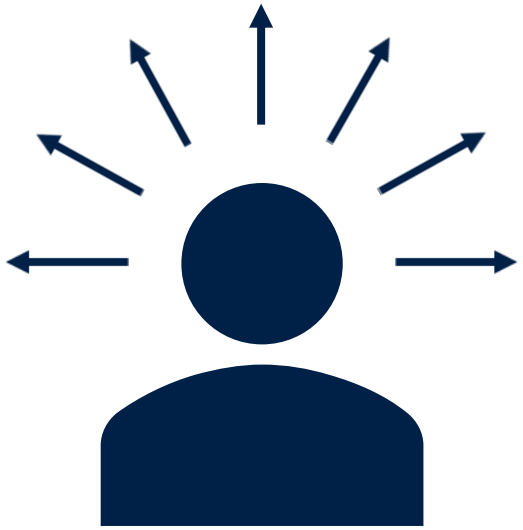
Don’t judge your performance against others

Track progress over time



**Belief**

# Strategies to tackle cognitive bias



Cognitive Bias

Show the many ways in which STEM could be valuable to students

Demonstrate how STEM makes a difference to the world

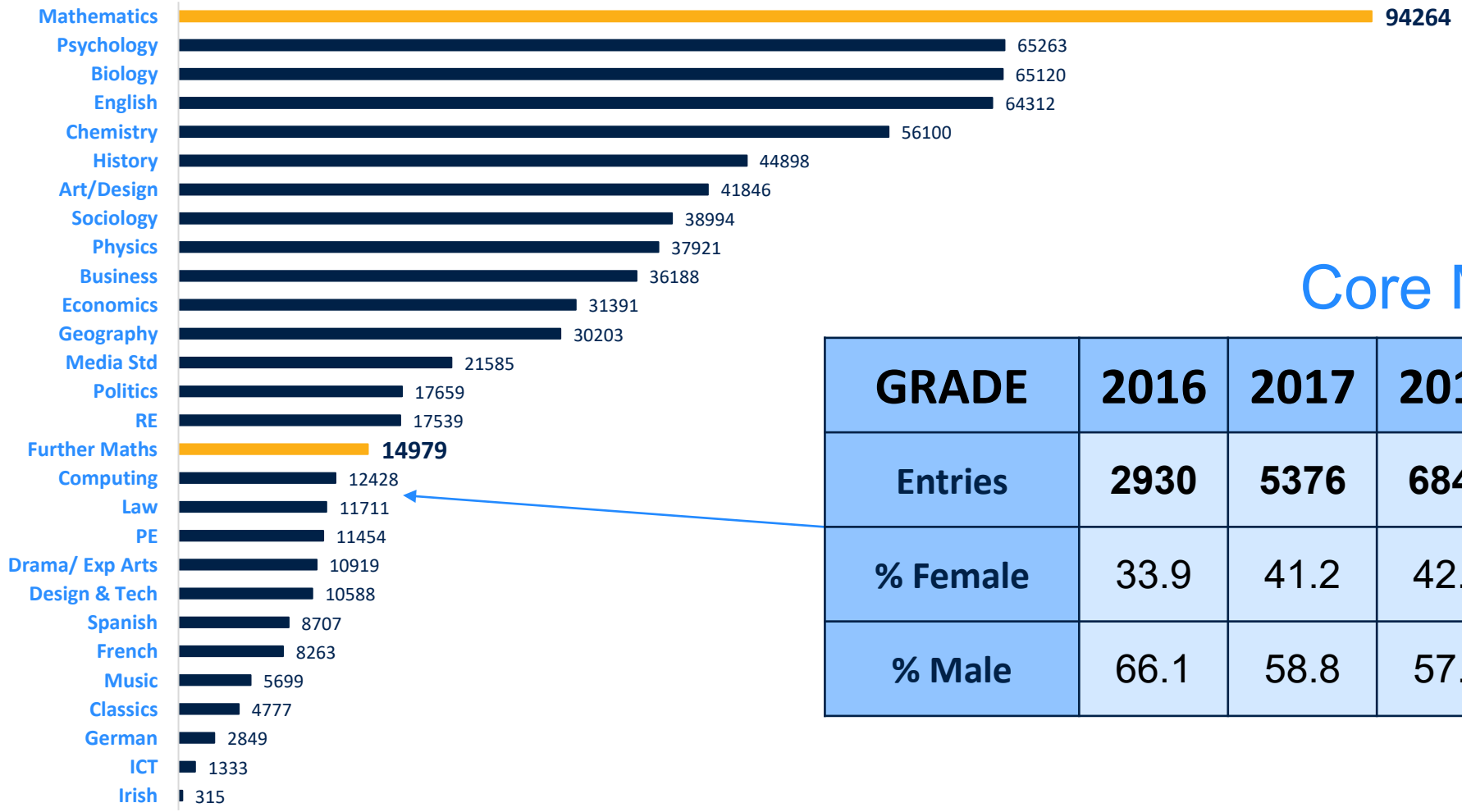
Relatable role models

# Relatable role models

https://amsp.org.uk/resource/advanced-maths-experiences

https://amsp.org.uk/resource/where-maths-meets-the-world-of-work

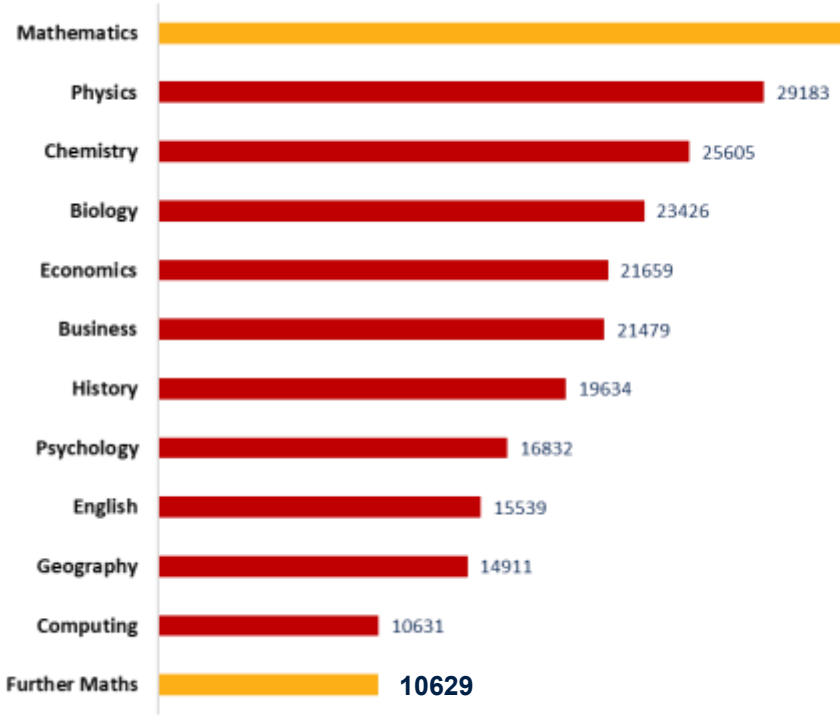
# A level entries 2020 UK



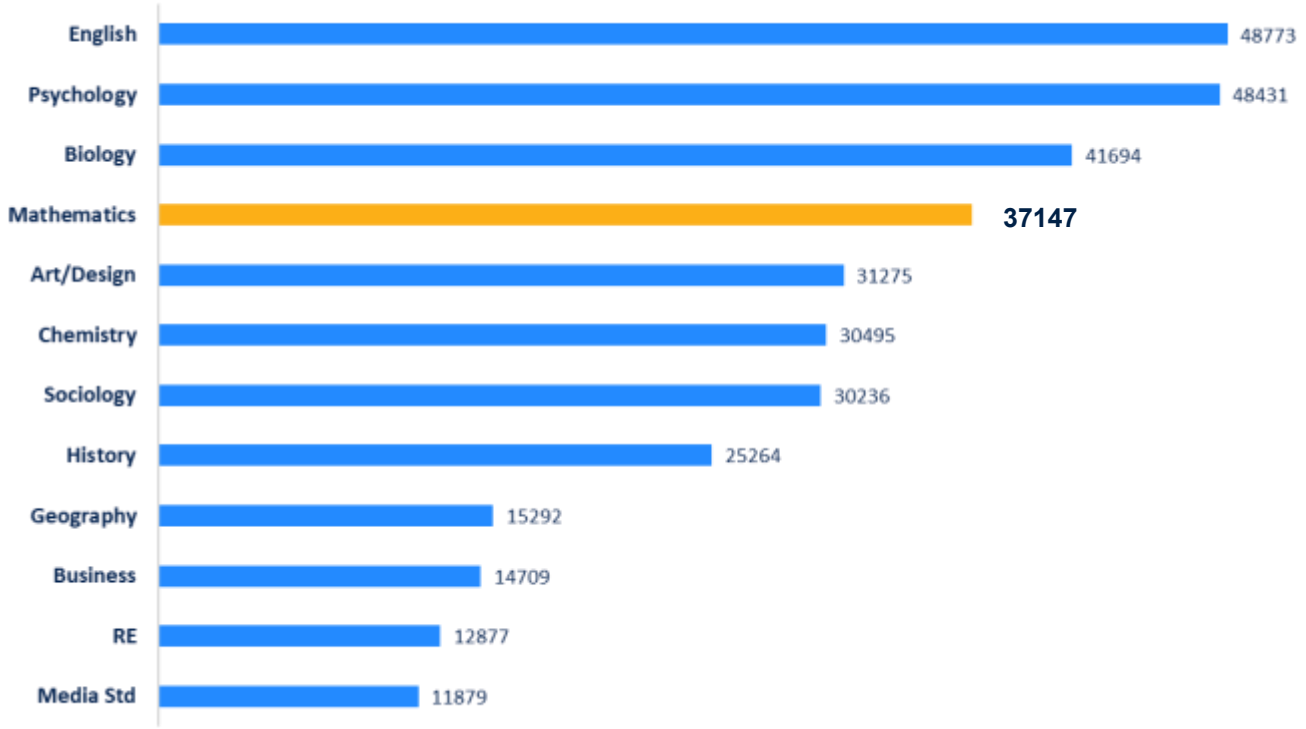

## Core Maths entries

| GRADE | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Entries | 2930 | 5376 | 6849 | 9027 | 11791 |
| % Female | 33.9 | 41.2 | 42.9 | 45.2 | 46.8 |
| % Male | 66.1 | 58.8 | 57.1 | 54.8 | 53.2 |

# A level entries 2020 UK

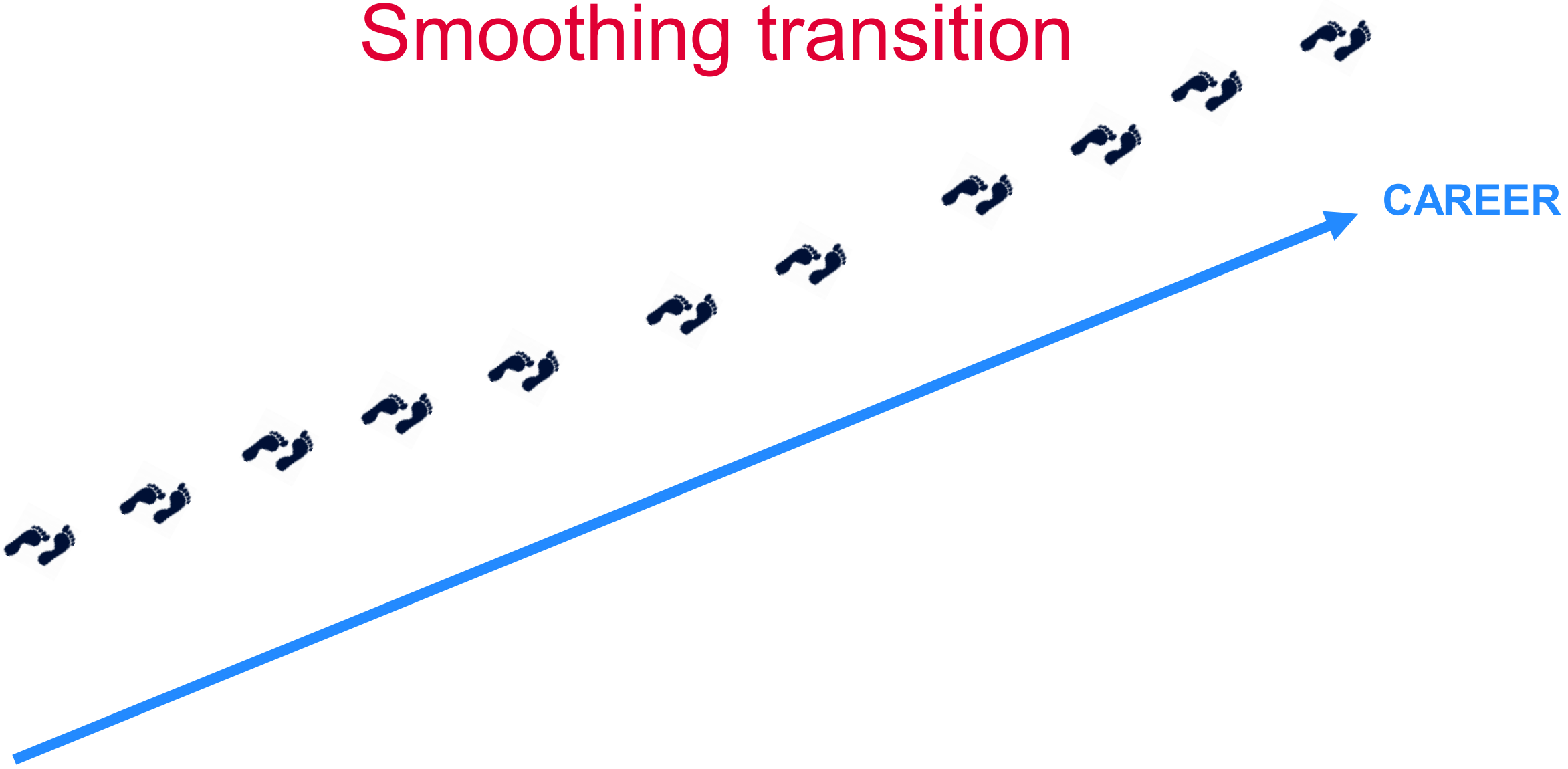



Male

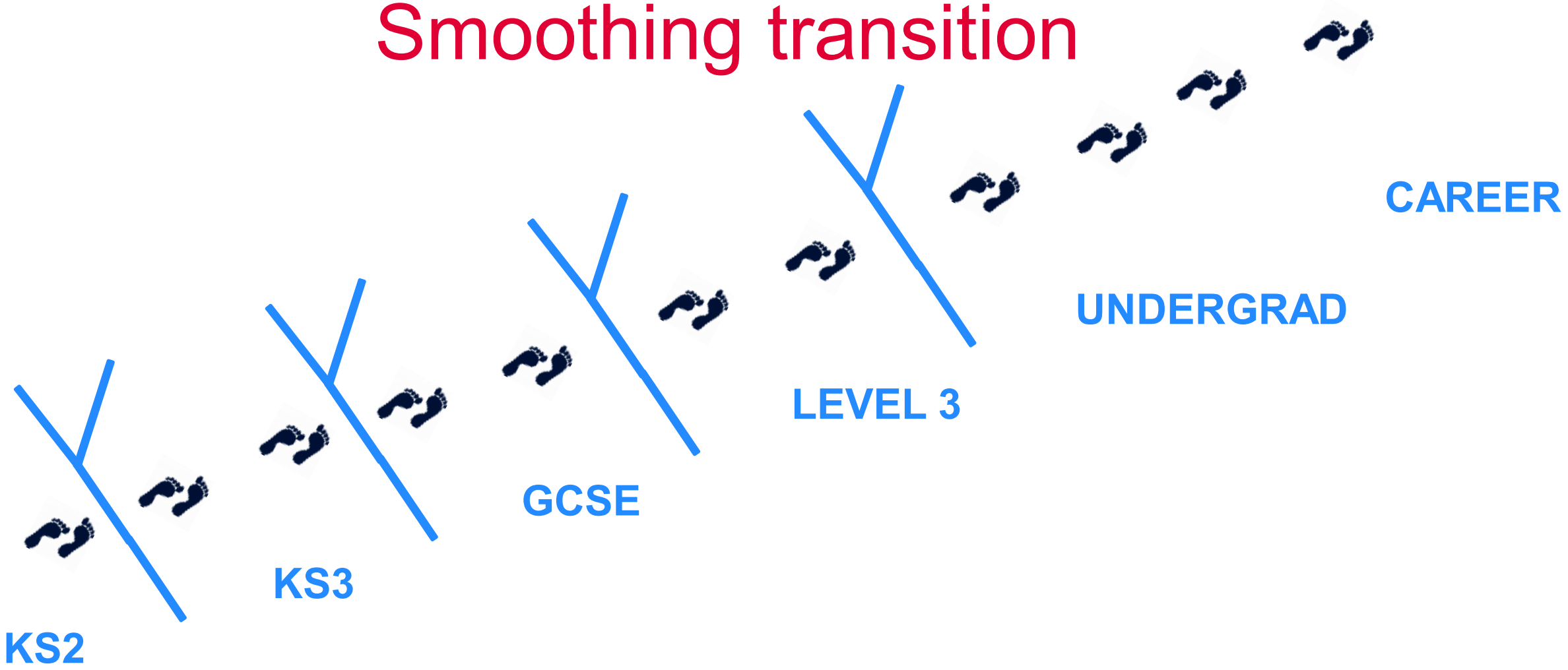



Female

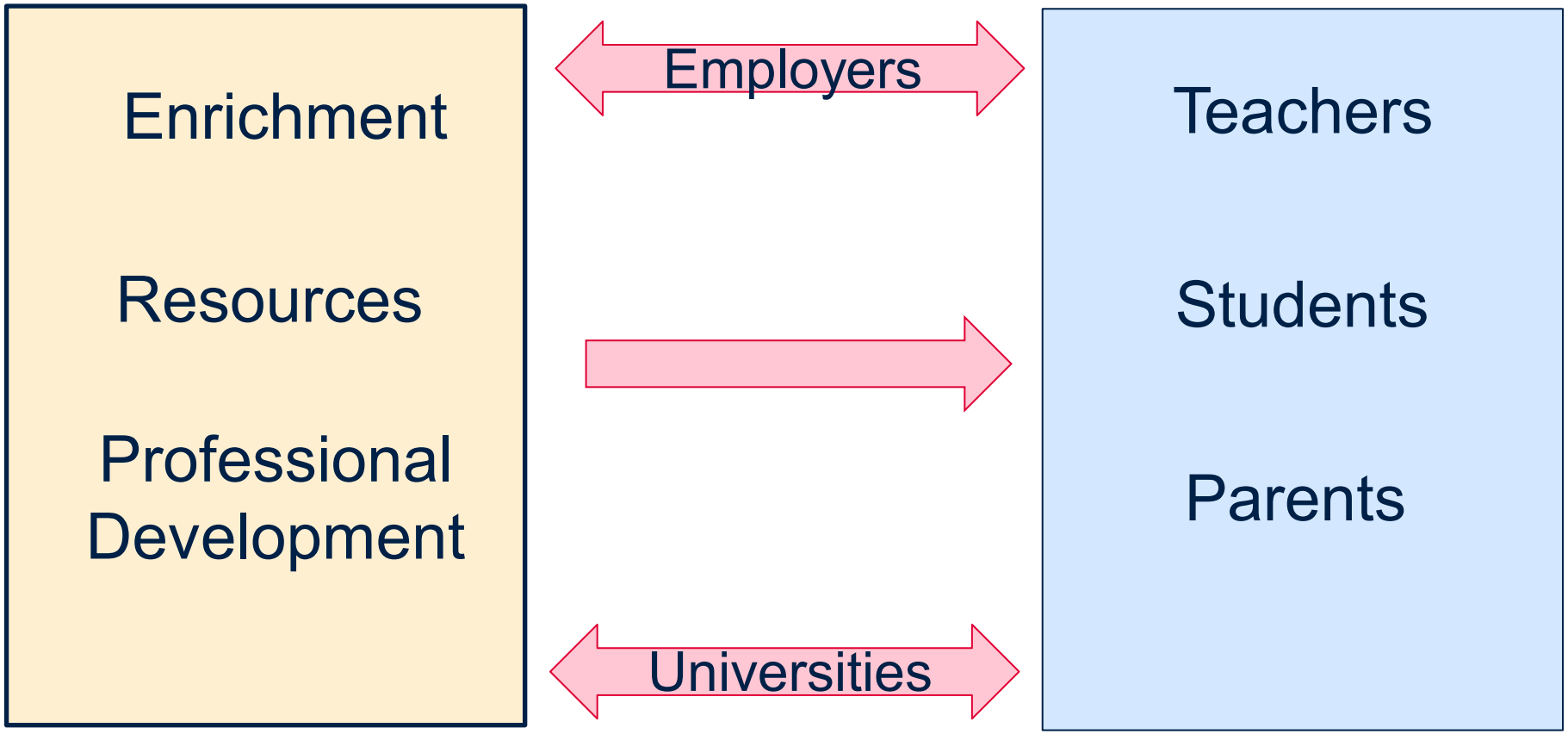
# Smoothing transition



# Smoothing transition



# What we do


Enrichment
Resources
Professional Development
Employers
Universities
Teachers
Students
Parents

# Reasons for choosing STEM post-16

## PRIOR ATTAINMENT
- Relative attainment – ‘all-rounders’ issue

## ENJOYMENT
- More influential with girls than boys

## PERCEIVED COMPETENCE
- Self concept lower in girls

## INTEREST
- More important to girls’ choices

## AWARENESS OF UTILITY
- Inform parents as well as students

Gender and participation in mathematics and further mathematics A-levels: a literature review. Cathy Smith. IoE. UCL

# What's available?

Advanced Mathematics Support Programme®

https://amsp.org.uk/teachers/11-16-maths/girls-participation

STEMettes

Equals.tv

girls in data

WISE

MY SKILLS MY LIFE

genderaction

IOP Institute of Physics

Limit Less

MATHS 4 GIRLS

STEM LEARNING