# Using outdoor learning and coaching to support transition to HE Mathematics

On the affective side of learning mathematics.

Davide Penazzi – University of Central Lancashire Inclusive teaching – 26/03/2019 – Lancaster University Transition and perception of mathematics

 The TIRED Mathematics: Tedious, Isolating, Rote-learning, Elitist and Depersonalizing. [Nardi & Steward]

Disengagement and disaffection.

#### Mathematical resilience and ownership

- Some characteristics of the successful students of mathematics have been identified by Sue Johnston-Wilder and Clare Lee.
  They define the "mathematically resilient" student.
- Growth mindset: the belief that they can learn mathematics.
- Value: valuing the study of mathematics.
- Struggle: knowing that learning mathematics involves struggle (and being ready to undertake it).
- Resources: knowing where it is possible to get support.

### Mathematical resilience and ownership

Note: these cannot be "taught"!

How can we facilitate their development in students?

# What is outdoor learning?

- Outdoor Learning is a broad term that includes discovery, experimentation, learning about and connecting to the natural world.
- Outdoor Learning helps people of all ages, backgrounds and abilities to reflect and learn about themselves, each other and their environment. The positive memories and lasting benefits impact academic achievement / new skills learning, personal and social development, care for the environment, career and professional development, wellbeing and mental health.

[Institute of Outdoor Learning]

# **Properties of the outdoors**

 Can you give me some adjectives that come to your mind of when thinking about the outdoors?



## The UCLan Maths outdoor course

 Idea: using the transformational properties of the outdoors to help students start a reflecting process on their own learning.

Doing the "maths skills" without the maths baggage!

 Students on the Mathematics degree at UCLan go, around 6 weeks into their first year, for a three-day outdoor residential course in Wales, with activities tailored to stimulate reflection on their learning and specific to mathematics.

# The UCLan Maths outdoor course

Students participating have obtained an average APM at their first sit in the first year 14 grades higher than nonattending peers (confidence level 95%).



## The UCLan Maths outdoor course

Short term intervention...

 How to continue the reflection process in the students when back at university?

 Integration with existing support forms: PASS (SI) and Personal Tutors.

# Thank you!

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