Cultivating Student led Tutorials in STEM

Melanie Gregg, Vivien Cleary

The Open University

Project title

Cultivating student led tutorials - The effects of a flipped online classroom.

ESTEEM
THE OU CENTRE FOR STEM PEDAGOGY

‘Tell me and I forget. Teach me and I remember. Involve me and I learn.’

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Intention

The objective of this small-scale study was to create a tutor free, active learning environment where students feel at ease to discuss and work on skill-based problems together.

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How did we create a fun, relaxed space?

Pre tutorial activities for example:

1. Positive quotes
2. Drawing activities
3. Quizzes
4. Dingbats

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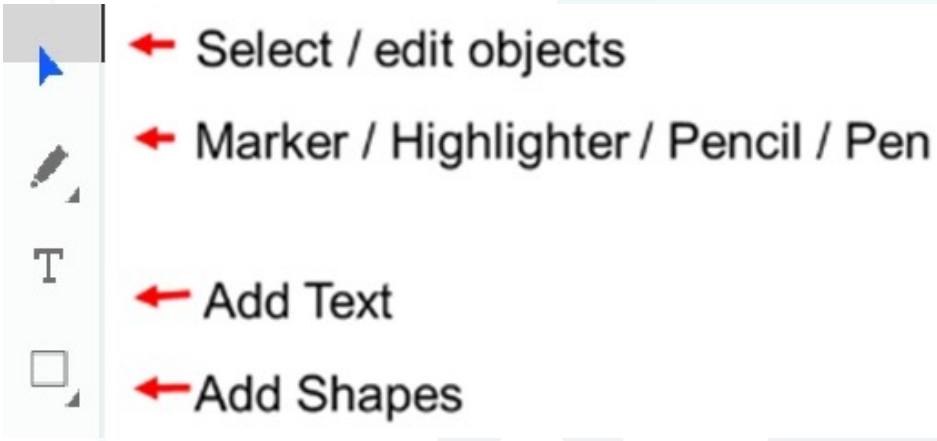
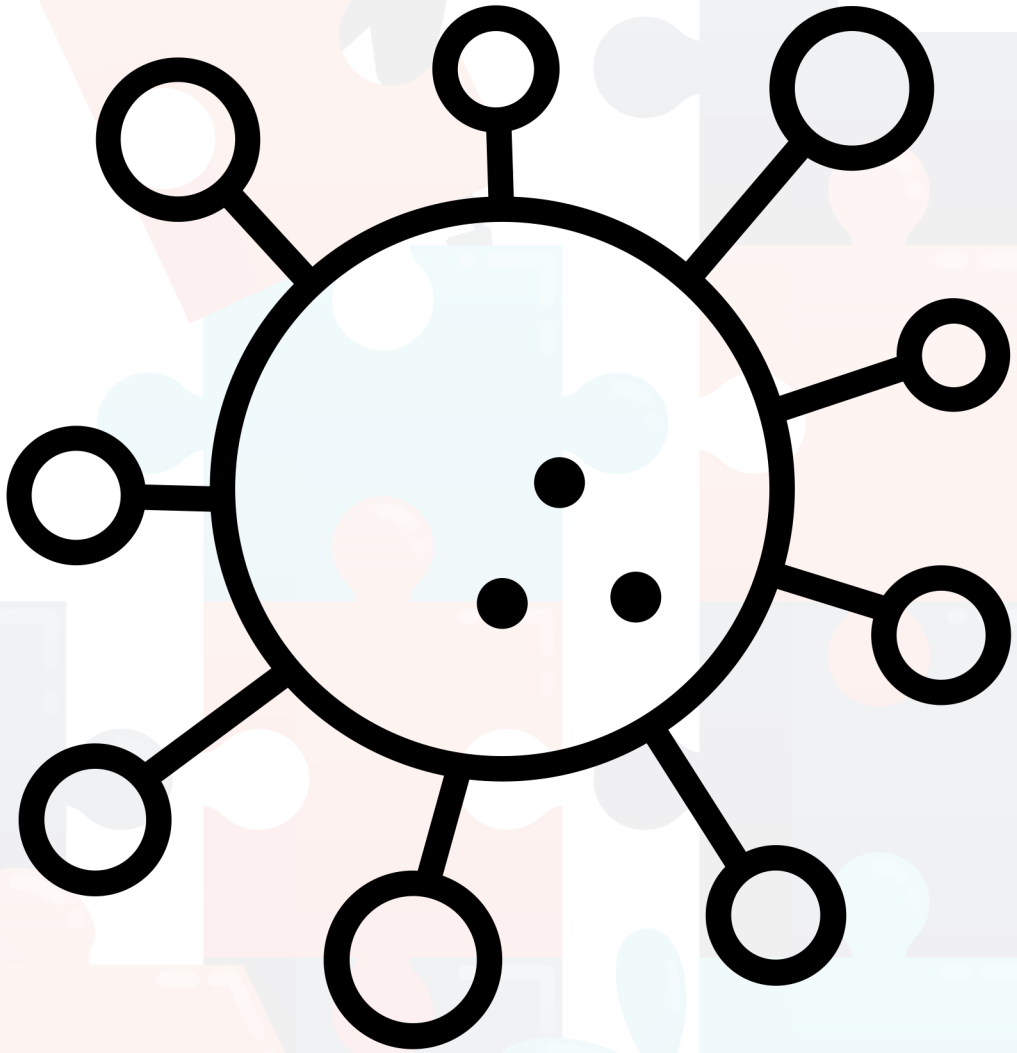
Activity 1: Decorate the virus using the draw tools.





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Activity 2: Drag the disease to the year they were discovered.

Measles

HIV

Hepatitis C

Ebola

Tuberculosis

Cholera

1882

1989

1981

1976

1854

1757

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Activity 3: Dingbats - chemical elements

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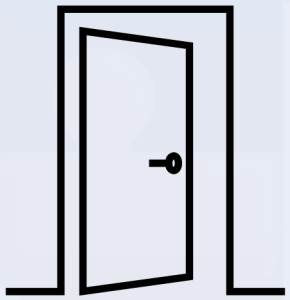
Now it's your turn to try a welcome activity…



You will be assigned a break out room.

An introduction task awaits you in your break out room.

Once in your room please **select one person** as spokes person for the plenary.

You will be provided with a link to a padlet board for comments.

This activity is a taster for you to try and will be approximately 5 minutes.

The pictures and letters are hyperlinked

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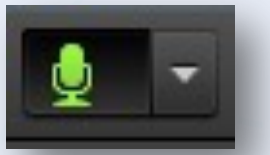
Reminders

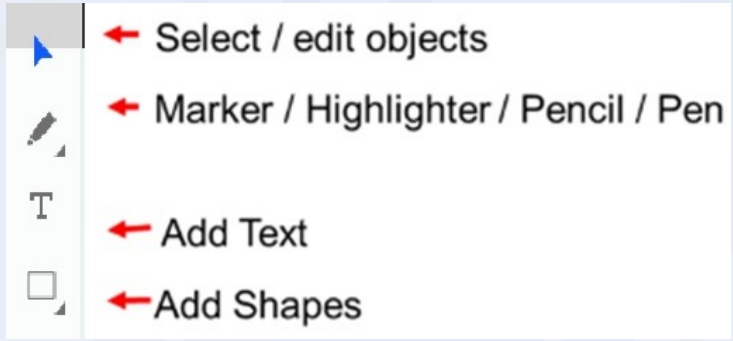
Microphone use

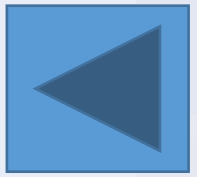


Click to make mic green and active
You can now talk ☺

Click again to turn it off

Draw tools





Action button - press to go to previous slide

Action button - press to go to next slide

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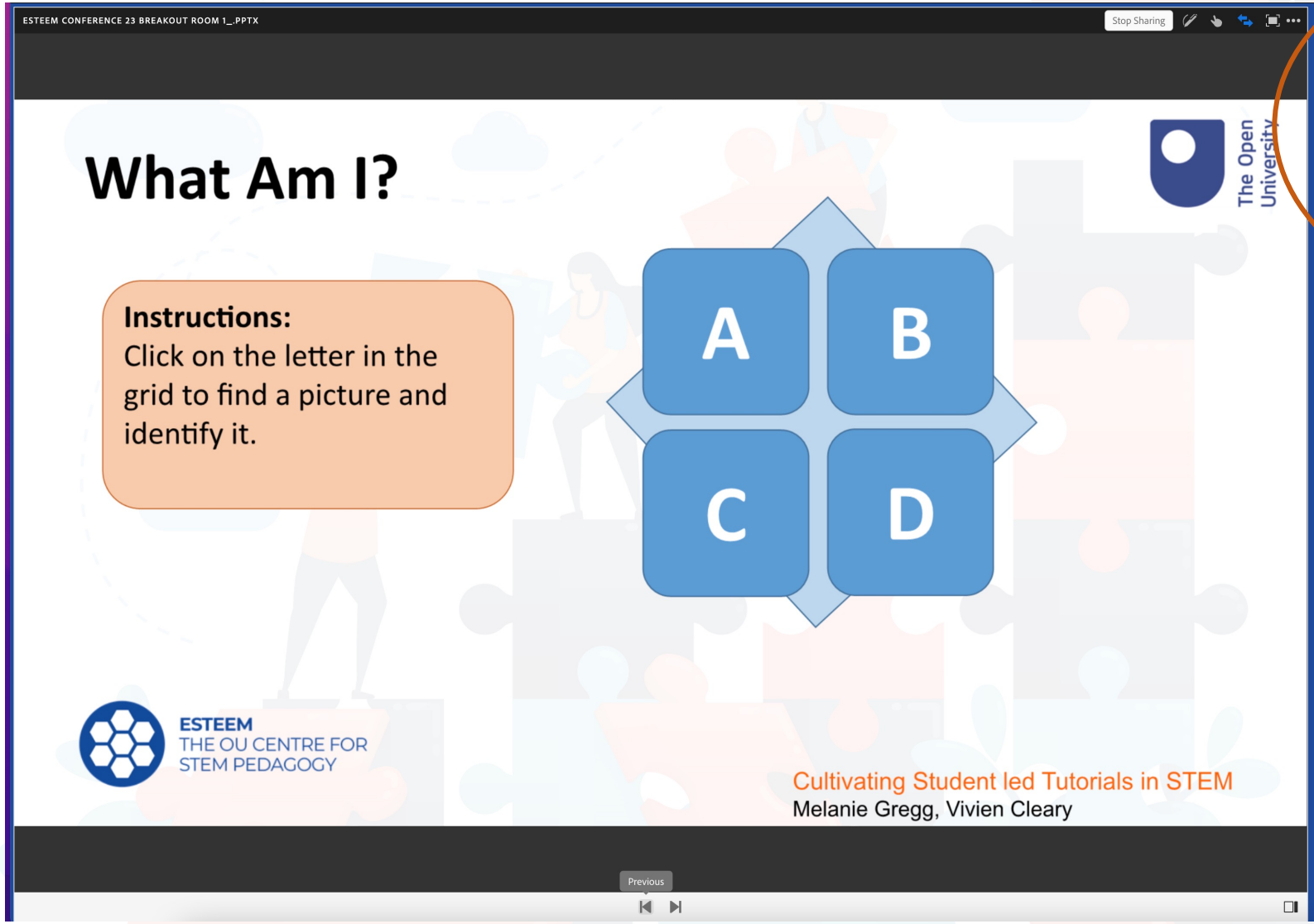

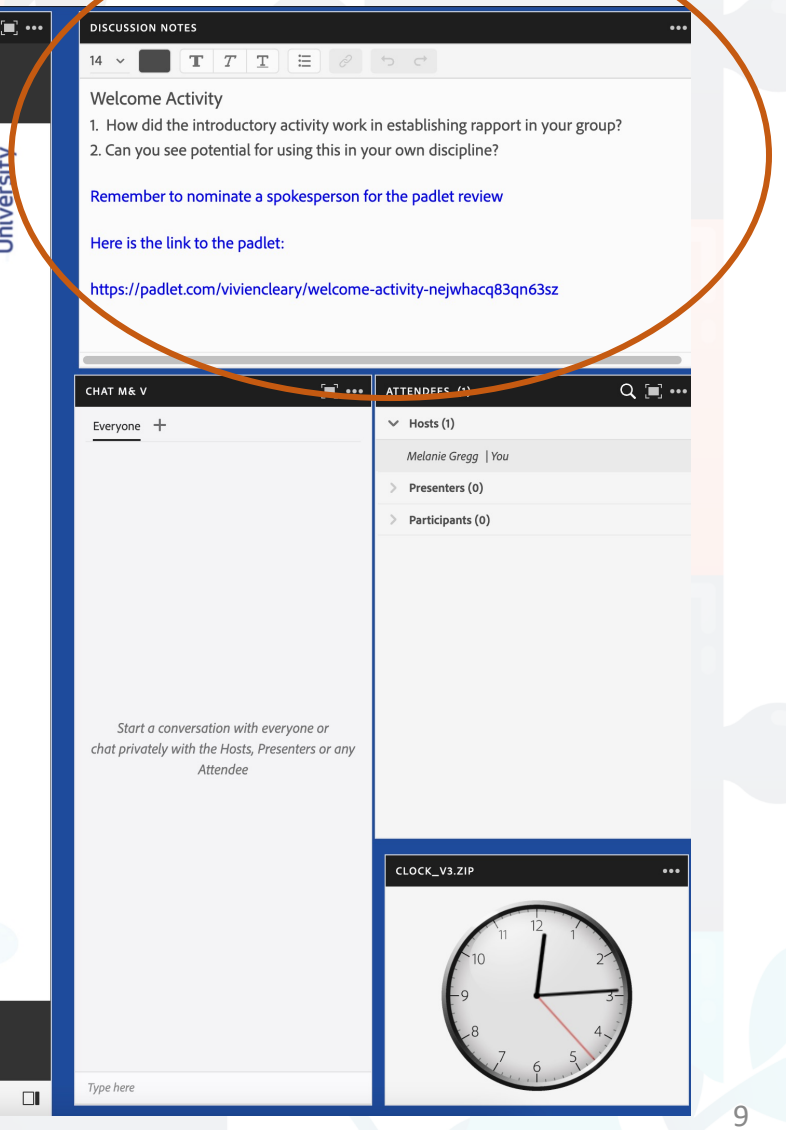

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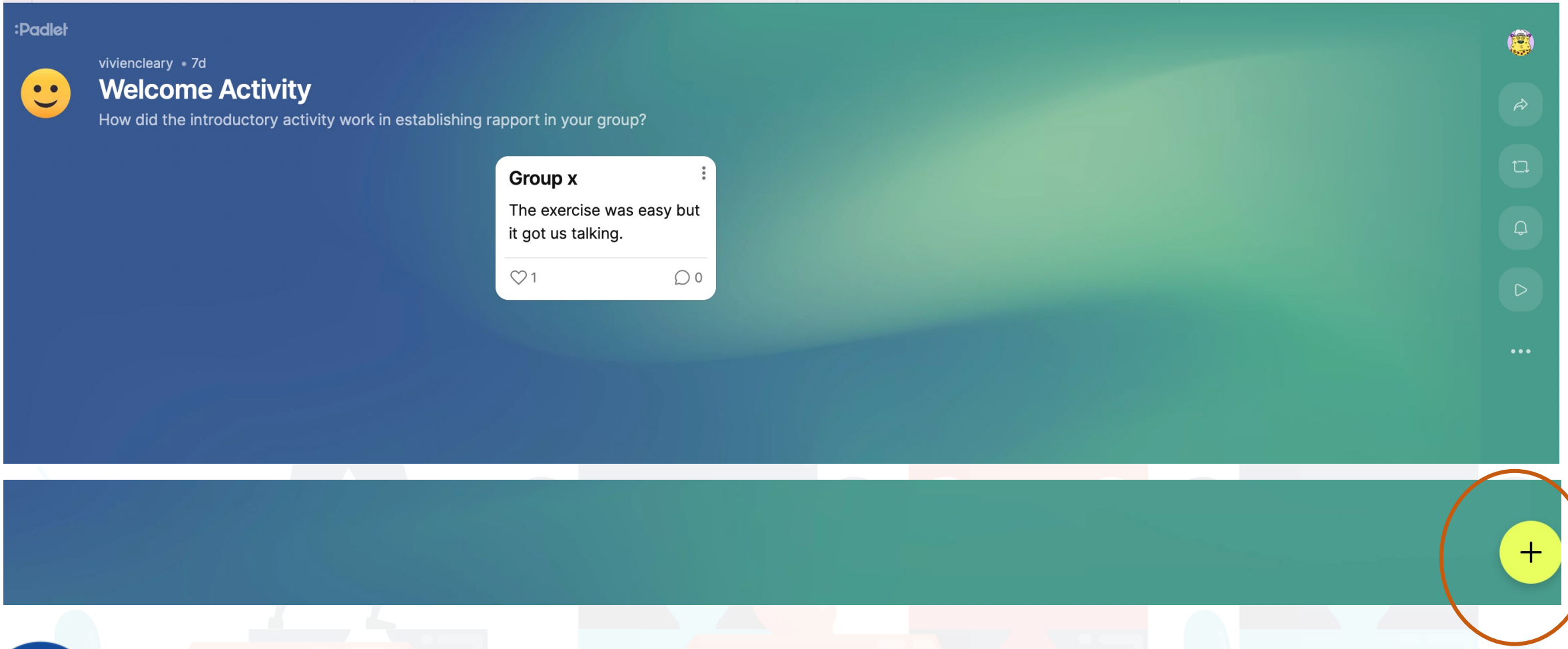

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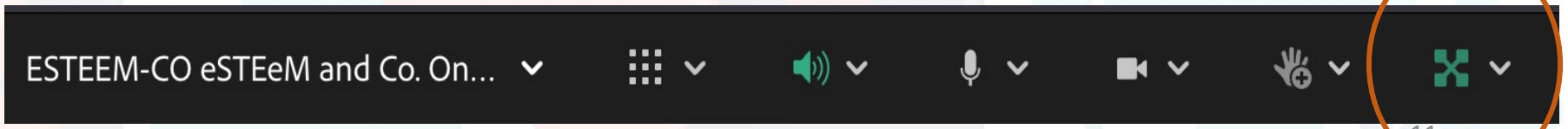
Each breakout room has a set of pictures to identify.

As a group discuss what you think they are and the link between them.

You will be given 5 minutes for this task.

And then a reminder for the spokes person to complete the padlet board.

The remaining attendees can click on the padlet board hearts to agree.



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Data collection

1. Breakout room tasks designed and launched in four Tutor groups.
2. Online survey was issued post tutorial on 5 occasions.
3. End of module general survey issued to ALL students in the 4 groups.
4. Post exam 20 minute Interview carried out with 8 students.

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How did we create appropriate tasks?

Ensuring it challenged up to date students but could also be attempted by those that had fallen behind

We considered:

1. Previous students' misunderstandings and difficulties.
2. Skills required for upcoming TMAs.
3. Increasing the complexity as year progressed.
4. Allowing enough time to complete task with a little extra to chat.

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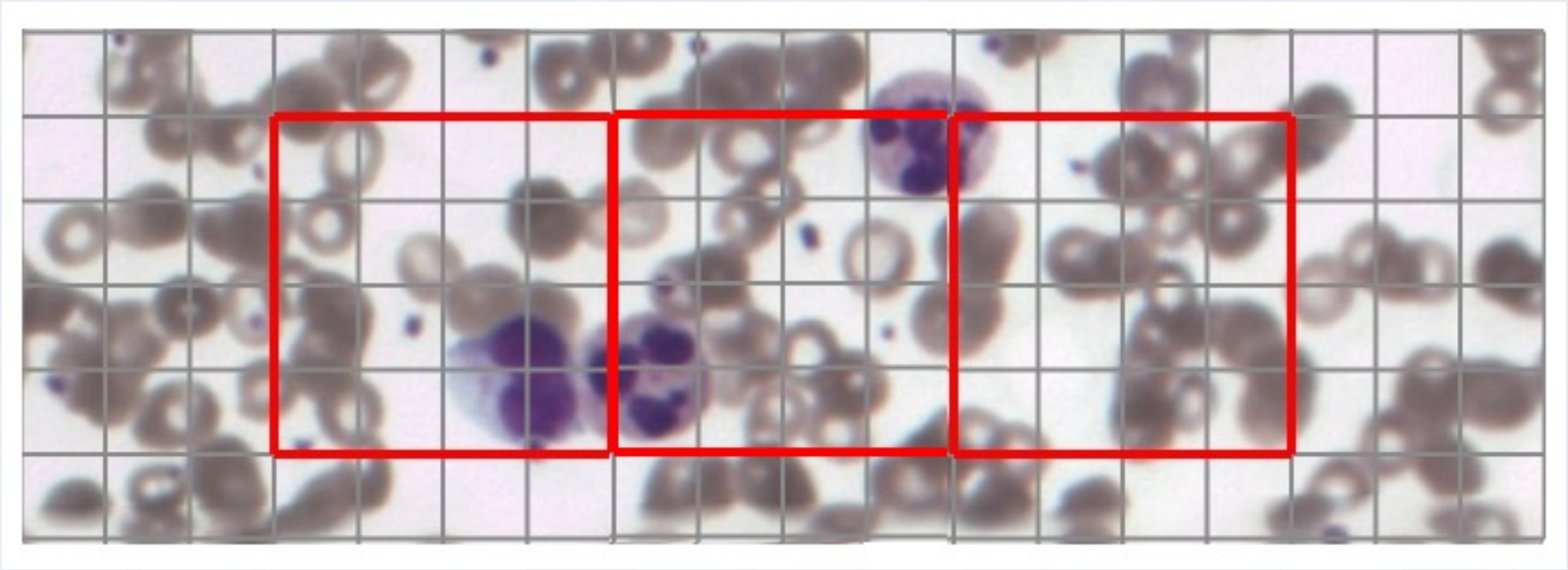
The Breakout room activity: example 1

Using the digital microscope



The Open University (2020). Infectious Diseases. Section 7.4.5 Counting leukocytes in blood samples. *SDK100: Science and Health.*

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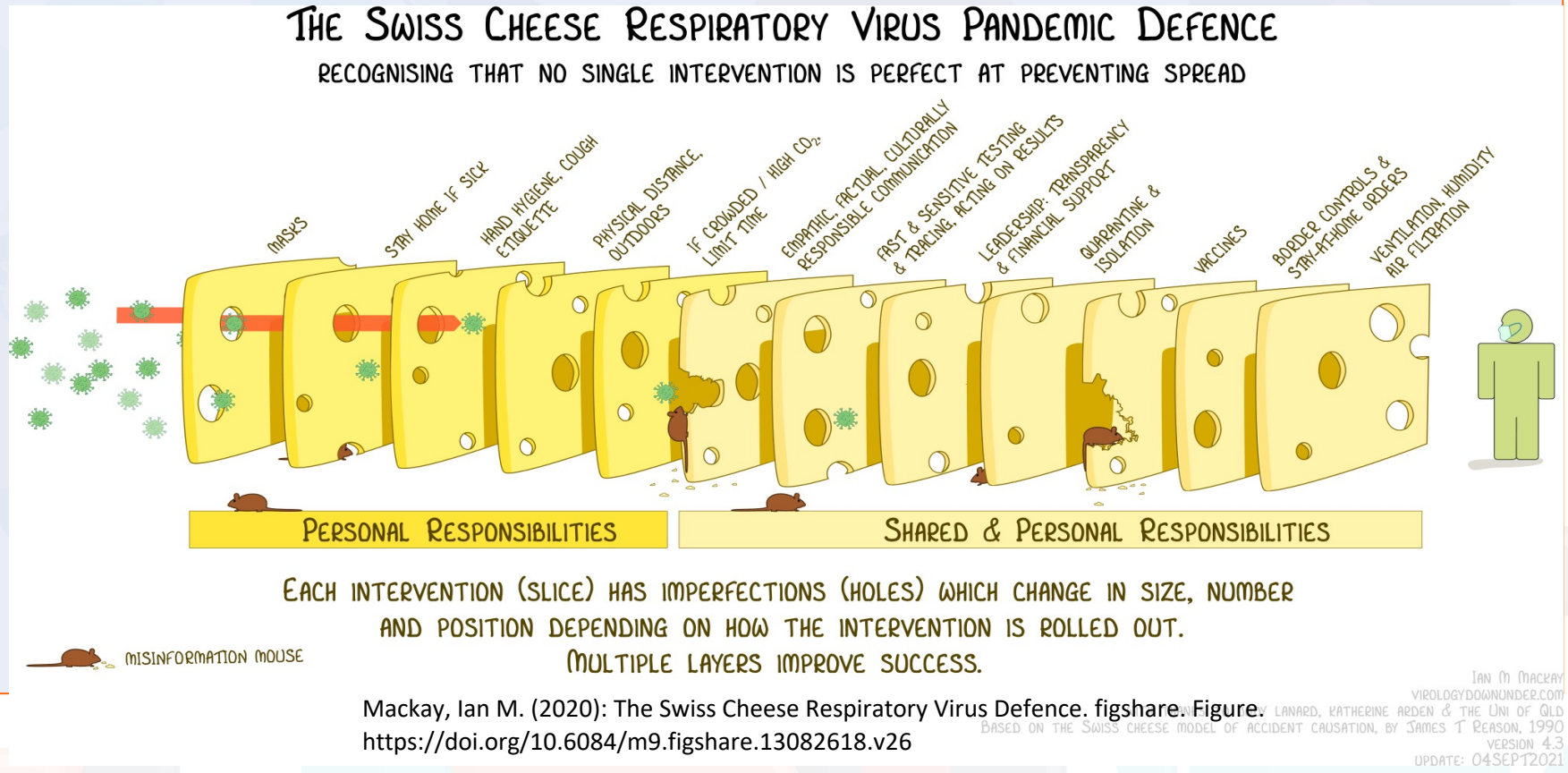
The Breakout room activity: example 2 – *essay writing*

Question:

Plan an essay with an introduction, 3 paragraphs and conclusion for:

Discuss the top 3 mitigations in preventing corona virus transmission



Mackay, Ian M. (2020): The Swiss Cheese Respiratory Virus Defence. figshare. Figure. https://doi.org/10.6084/m9.figshare.13082618.v26

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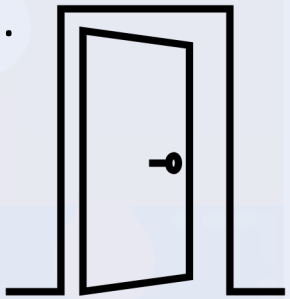
Now it's your turn to try skills based tasks…

You will be assigned a break out room where you can access 3 interactive activities.

Background information, Interactive tasks and solutions await you in your break out room.



Once in your room please **select one person** as spokes person for the plenary.

You will be provided with a link to a padlet board for comments.

This activity is a breakout room activity taster for you and will be approximately 10 minutes.

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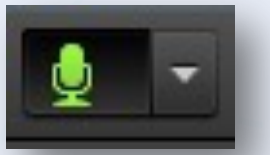
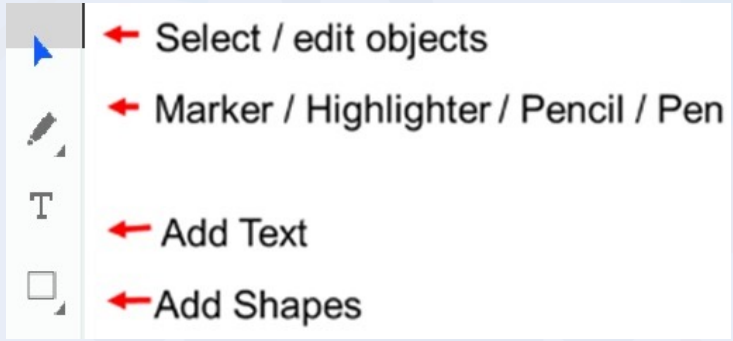
Microphone use



Click to make mic green and active
You can now talk ☺

Click again to turn it off

Draw tools



Click on the draw tool icon to disable it.
Then you can use the link to padlet.

Please avoid clicking on the 'Stop Sharing' button ☺

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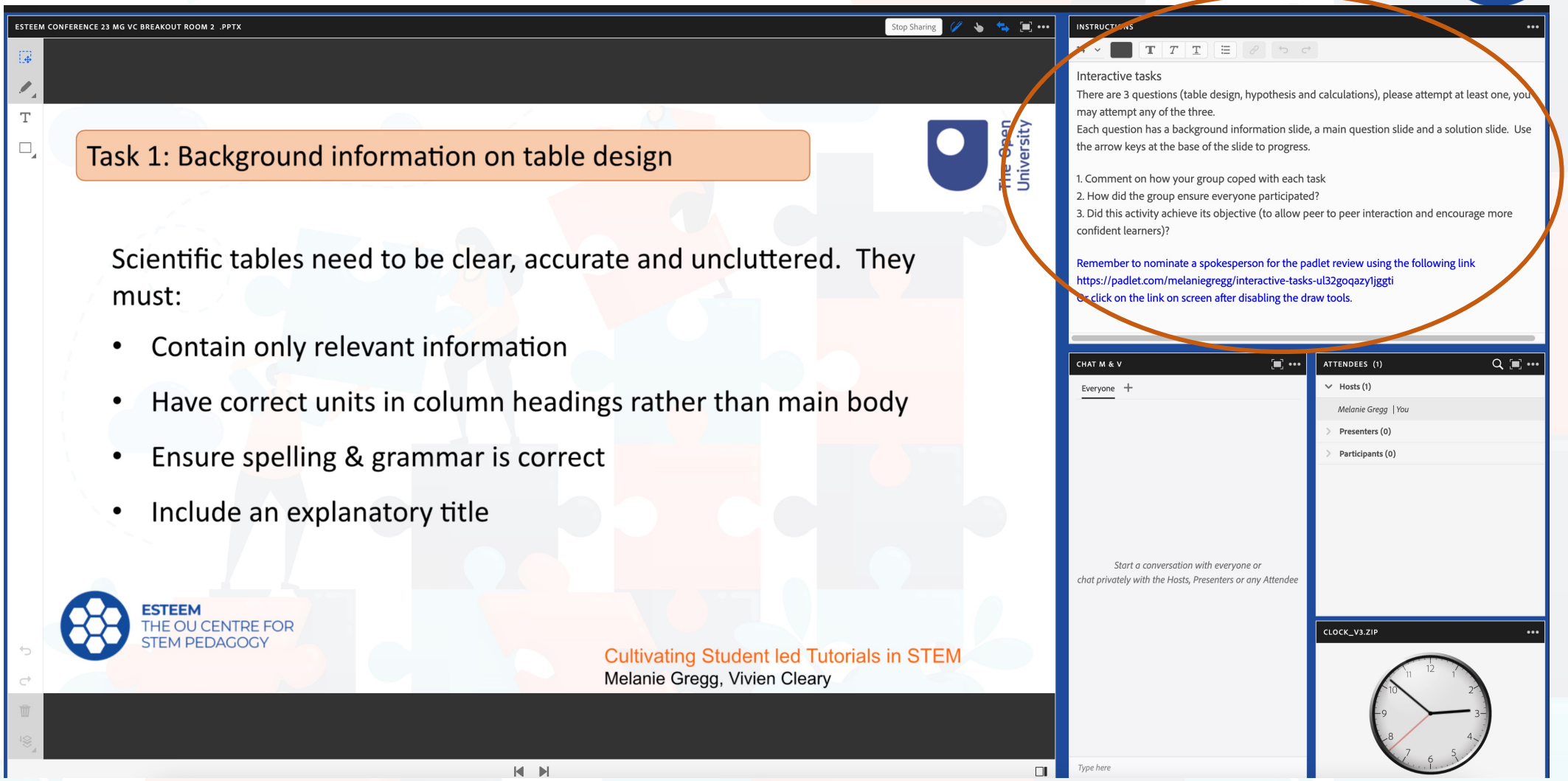

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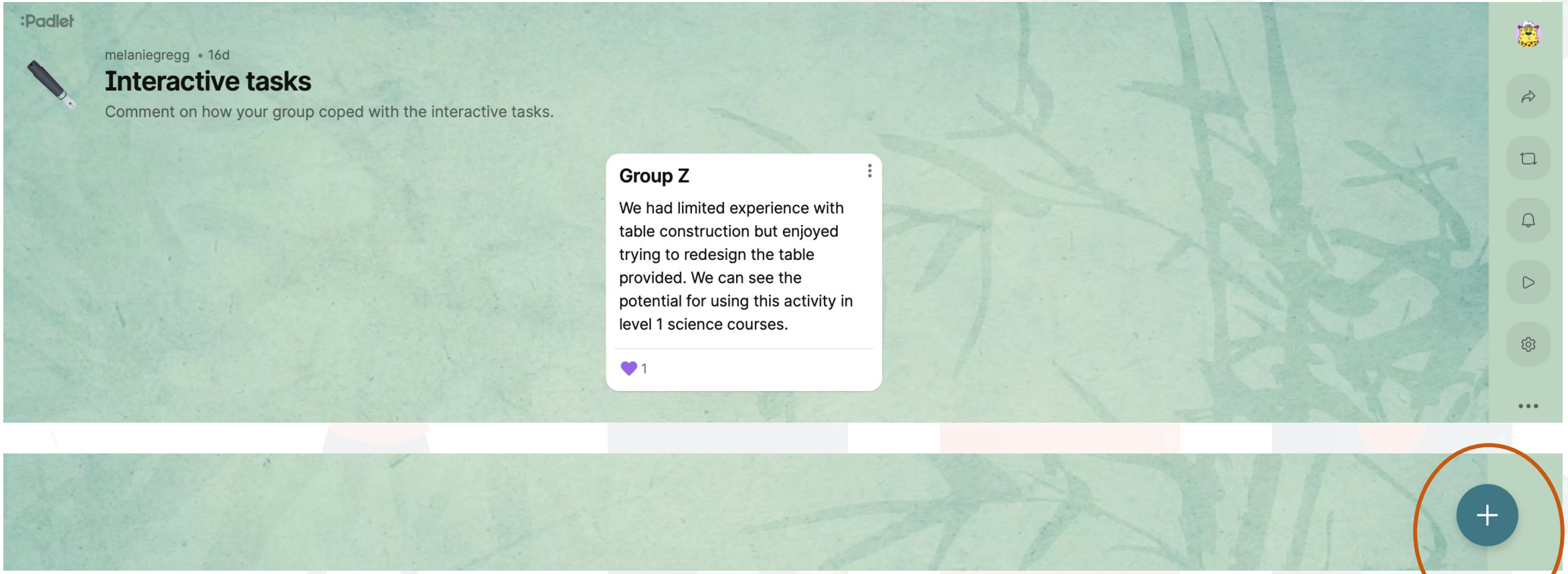

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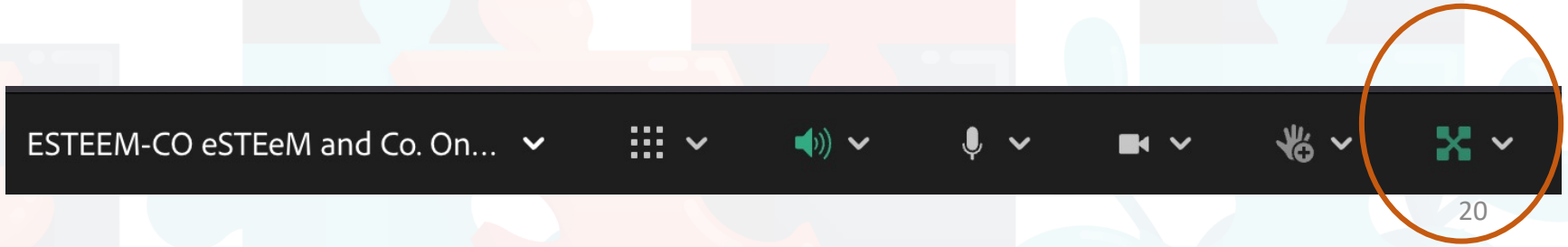
Each breakout room has 3 tasks and you have 10 minutes to complete at least one.

Each task has 3 slides

1. **Background information (if required)**
2. **The main question**
3. **A solution**

Then you will get a reminder for the spokes person to complete the padlet board.

The remaining attendees can click on the padlet board hearts to agree.



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Findings

1. After initial awkwardness most students enjoyed the challenge of completing a task in a tutor free space.
2. They preferred a mix of tutor led and interactive sections with ONE tutor free breakout room task.
3. The task design needed to be relevant to the upcoming TMAs.
4. A good tutor/student relationship is key to students' interaction and perception of course.
5. Fun and enjoyment was highly rated.

86% of those surveyed with JISC rated breakout rooms as beneficial in skills development.

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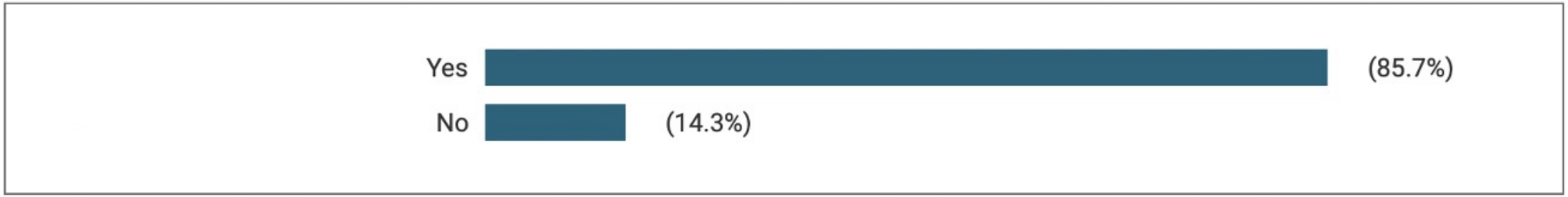
After tutorial 3

7 Have the break out room activities increased your skills?



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Survey Question:
How successful or unsuccessful were the student led breakout rooms?

'Oh, I think very successful… That's been a real surprise. These breakout sessions are very well designed.'

'I think what really surprises me is how quickly completely strangers can actually work together constructively to arrive at answers.'

'I never came away from those breakout rooms thinking, well, what was the point of that? I always learned something.'

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Give a green thumbs up when you have finished reading the slide ☺

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Survey Question:
Did you enjoy working without the tutor?

'The breakout rooms helped by practising the technique and then comparing with the rest.'

'When another student explains it offers new insight.'

'I actually just really enjoyed the interaction.'

'I think that gave us more space to say something that might be wrong or worrying about looking foolish, because you are with other students.'

'It was good to bounce off other people.'

'It was okay to be without the tutor for a short time.'

'If we got it wrong, you know we would help each other out.'

'An opportunity to drill down aspects of the reading I didn't fully understand.'

'Just talking to one other student was good.'

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Conclusions

1. Invest time in building a good tutor group community.
2. Provide some tutor free space (breakout rooms) with relevant activities in your tutorials.
3. Integrate fun into the tutorial, so learning is perceived as enjoyable.
4. Avoid packing everything into a tutorial and allow wriggle room for questions, learning from mistakes etc.
5. How students perceive their tutor is important to their progress – be supportive and encouraging.
6. These tutor free spaces have potential across all disciplines.

Be less of a sage on the stage and more of a guide by their side ☺

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Further research.

Where do we go from here…

- A large scale study.
- Matching digital footprint and academic performance with participation in active peer learning.
- Encouraging confident and widespread participation in student led breakout room activities.

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The final report is available on the ESTEEM website:

https://www.open.ac.uk/scholarship-and-innovation/esteem/projects/themes/supporting-students/cultivating-student-led-tutorials-stem

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Any questions

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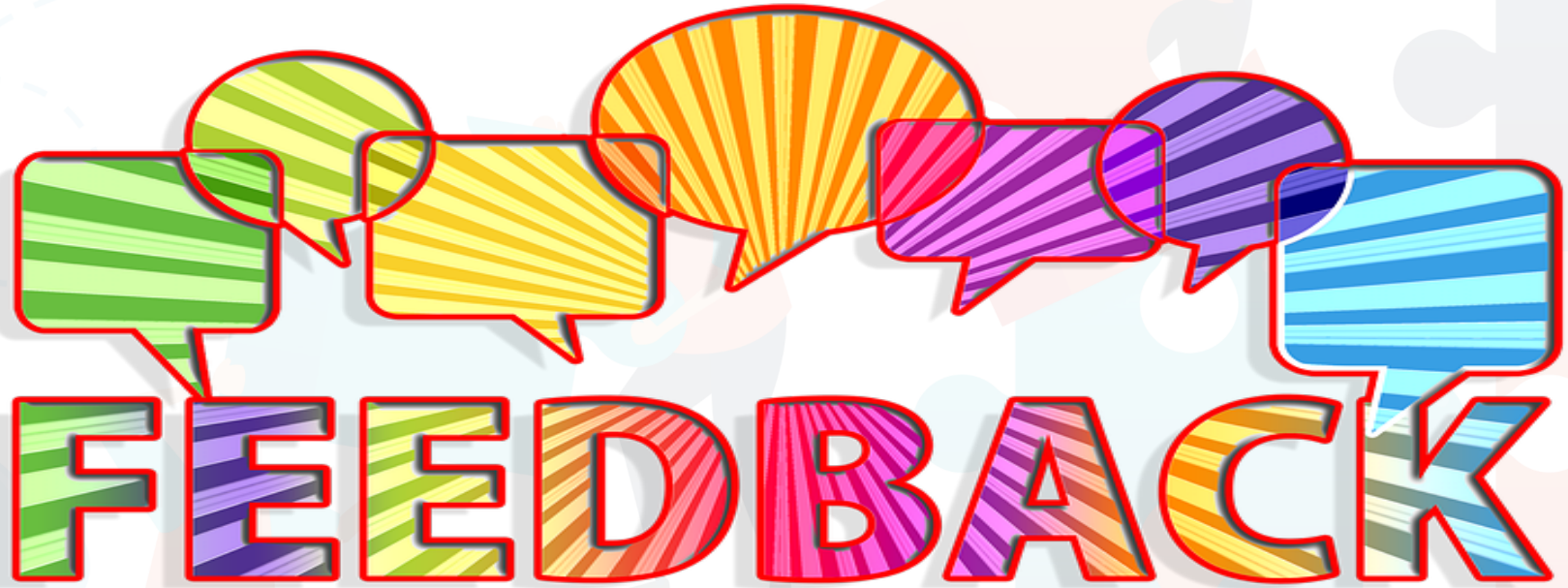
Your feedback



Do please give us feedback on the whole workshop experience via a padlet board:

https://padlet.com/melaniegregg/workshop-review-nsodcoqfdno2uds

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You can agree with a comment by clicking on the corresponding heart ☺