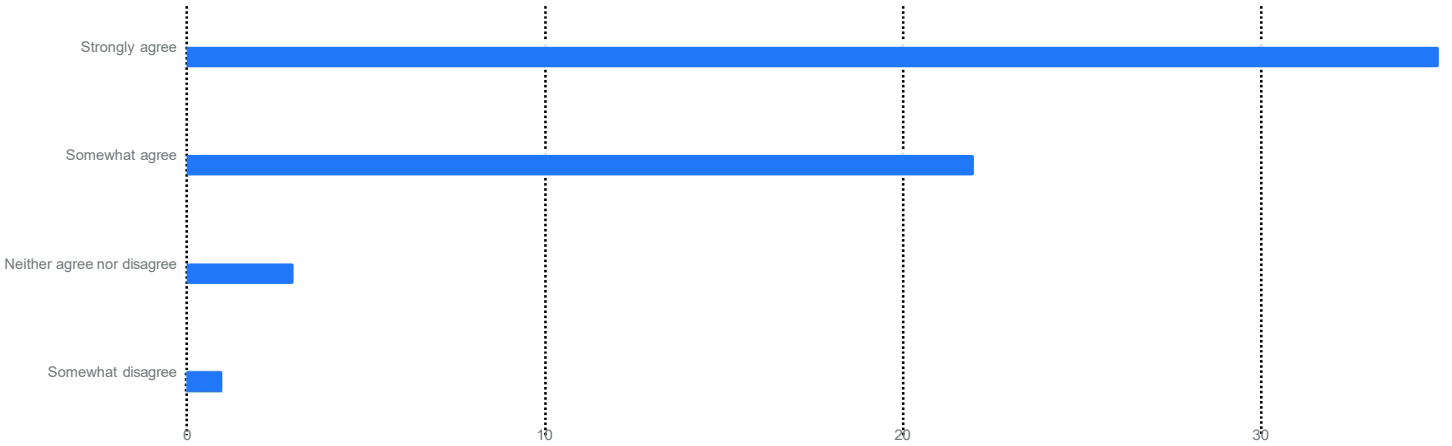


I enjoyed this “Locked in the Lab” escape room experience. 61



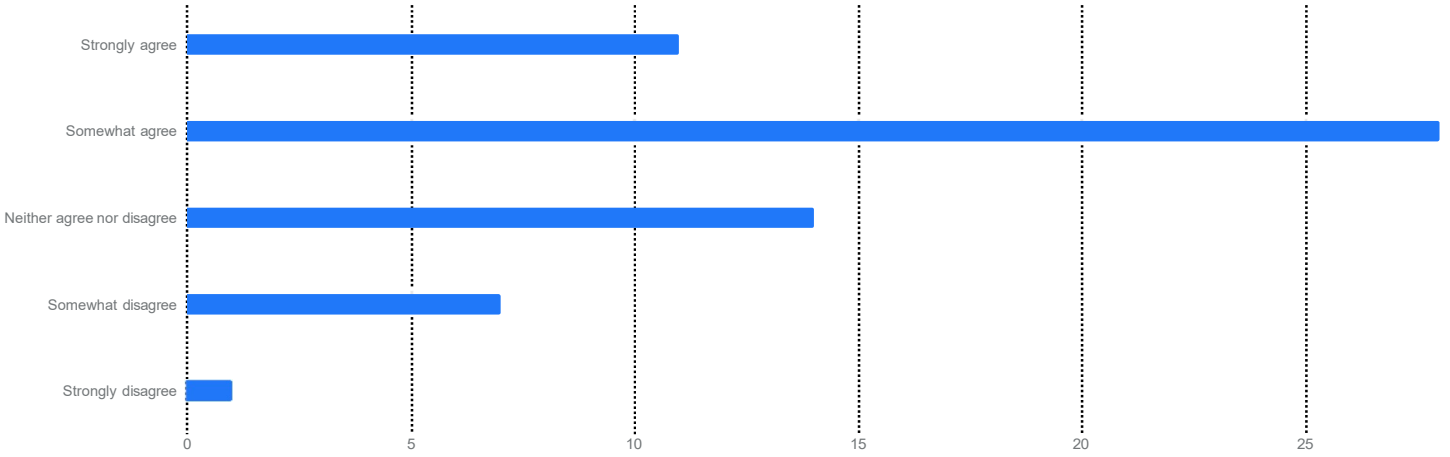
I enjoyed this “Locked in the Lab” escape room experience. 61

Q2 - I enjoyed this “Locked in the Lab” escape room experience.	Percentage	Count
Strongly agree	57%	35
Somewhat agree	36%	22
Neither agree nor disagree	5%	3
Somewhat disagree	2%	1

I enjoyed this “Locked in the Lab” escape room experience. 61

I enjoyed this “Locked in the Lab” escape room experience.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	35
Somewhat agree	2.00	2.00	2.00	22
Neither agree nor disagree	3.00	3.00	3.00	3
Somewhat disagree	4.00	4.00	4.00	1

This escape room increased my interest in cell biology. 61



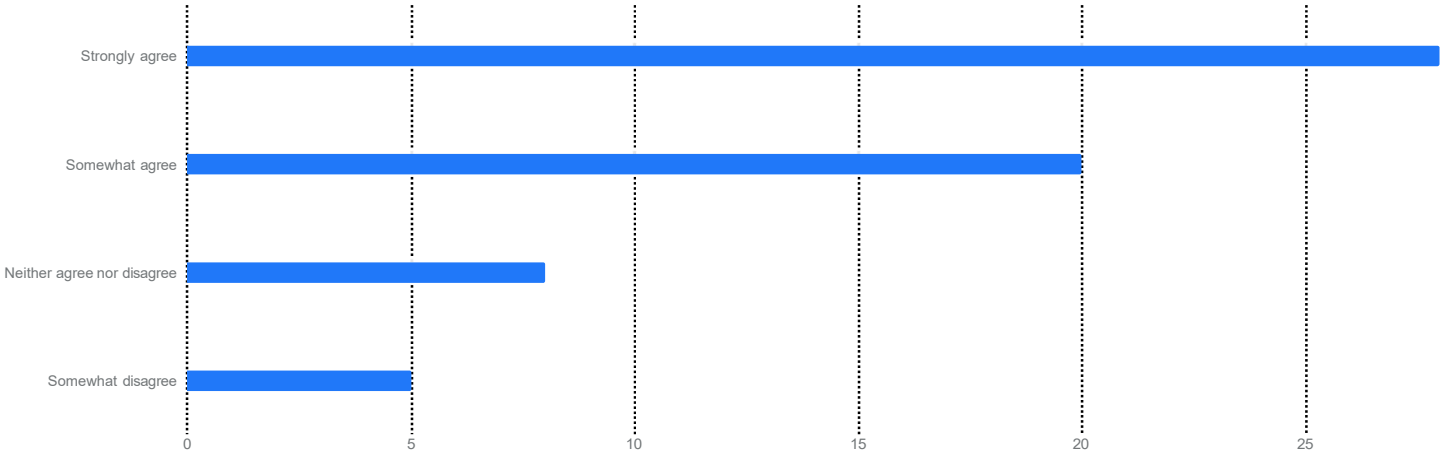
This escape room increased my interest in cell biology. 61

Q3 - This escape room increased my interest in cell biology.	Percentage	Count
Strongly agree	18%	11
Somewhat agree	46%	28
Neither agree nor disagree	23%	14
Somewhat disagree	11%	7
Strongly disagree	2%	1

This escape room increased my interest in cell biology. 61

This escape room increased my interest in cell biology.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	11
Somewhat agree	2.00	2.00	2.00	28
Neither agree nor disagree	3.00	3.00	3.00	14
Somewhat disagree	4.00	4.00	4.00	7
Strongly disagree	5.00	5.00	5.00	1

I would recommend the use of an educational escape room for other classes. 61



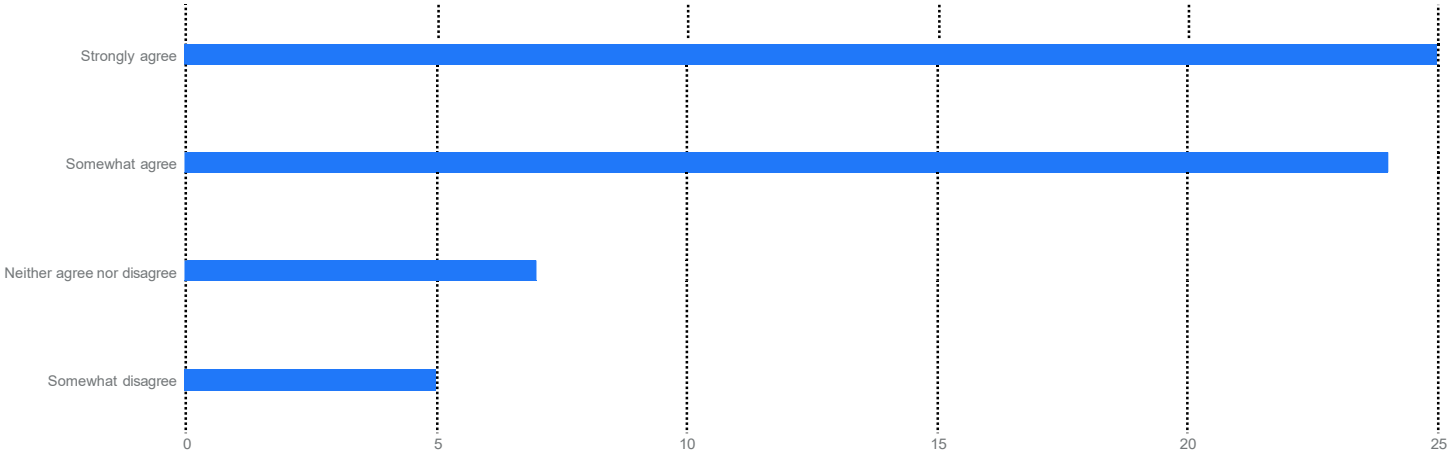
I would recommend the use of an educational escape room for other classes. 61

Q4 - I would recommend the use of an educational escape room for other classes.	Percentage	Count
Strongly agree	46%	28
Somewhat agree	33%	20
Neither agree nor disagree	13%	8
Somewhat disagree	8%	5

I would recommend the use of an educational escape room for other classes. 61

I would recommend the use of an educational escape room for other classes.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	28
Somewhat agree	2.00	2.00	2.00	20
Neither agree nor disagree	3.00	3.00	3.00	8
Somewhat disagree	4.00	4.00	4.00	5

The use of puzzles and problem-solving increased my curiosity about the escape room topics. 61



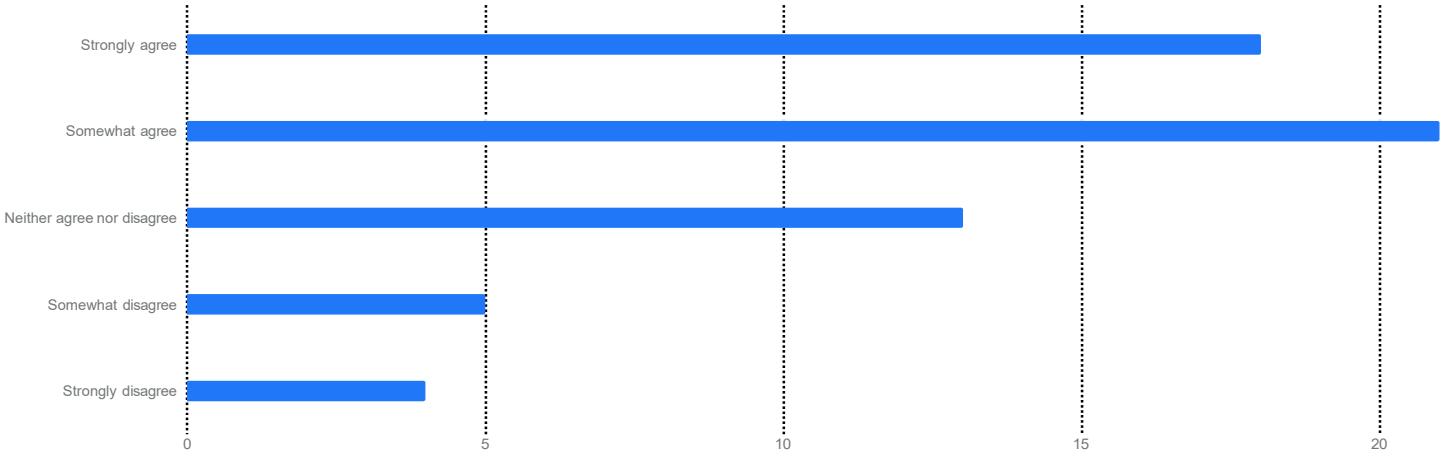
The use of puzzles and problem-solving increased my curiosity about the escape room topics. 61

Q5 - The use of puzzles and problem-solving increased my curiosity about the escape room topics.	Percentage	Count
Strongly agree	41%	25
Somewhat agree	39%	24
Neither agree nor disagree	11%	7
Somewhat disagree	8%	5

The use of puzzles and problem-solving increased my curiosity about the escape room topics. 61

The use of puzzles and problem-solving increased my curiosity about the esc...	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	25
Somewhat agree	2.00	2.00	2.00	24
Neither agree nor disagree	3.00	3.00	3.00	7
Somewhat disagree	4.00	4.00	4.00	5

I felt like a leader when solving at least one or more of the escape room puzzles. 61



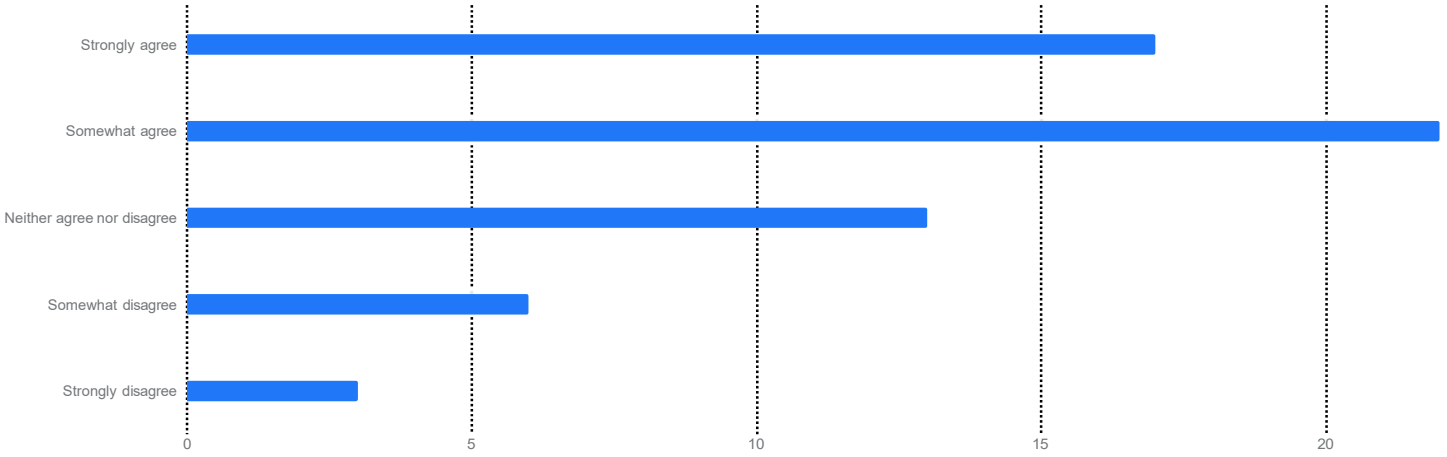
I felt like a leader when solving at least one or more of the escape room puzzles. 61

Q6 - I felt like a leader when solving at least one or more of the escape room puzzles.	Percentage	Count
Strongly agree	30%	18
Somewhat agree	34%	21
Neither agree nor disagree	21%	13
Somewhat disagree	8%	5
Strongly disagree	7%	4

I felt like a leader when solving at least one or more of the escape room puzzles. 61

I felt like a leader when solving at least one or more of the escape room p...	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	18
Somewhat agree	2.00	2.00	2.00	21
Neither agree nor disagree	3.00	3.00	3.00	13
Somewhat disagree	4.00	4.00	4.00	5
Strongly disagree	5.00	5.00	5.00	4

Participation in this escape room increased my confidence. 61



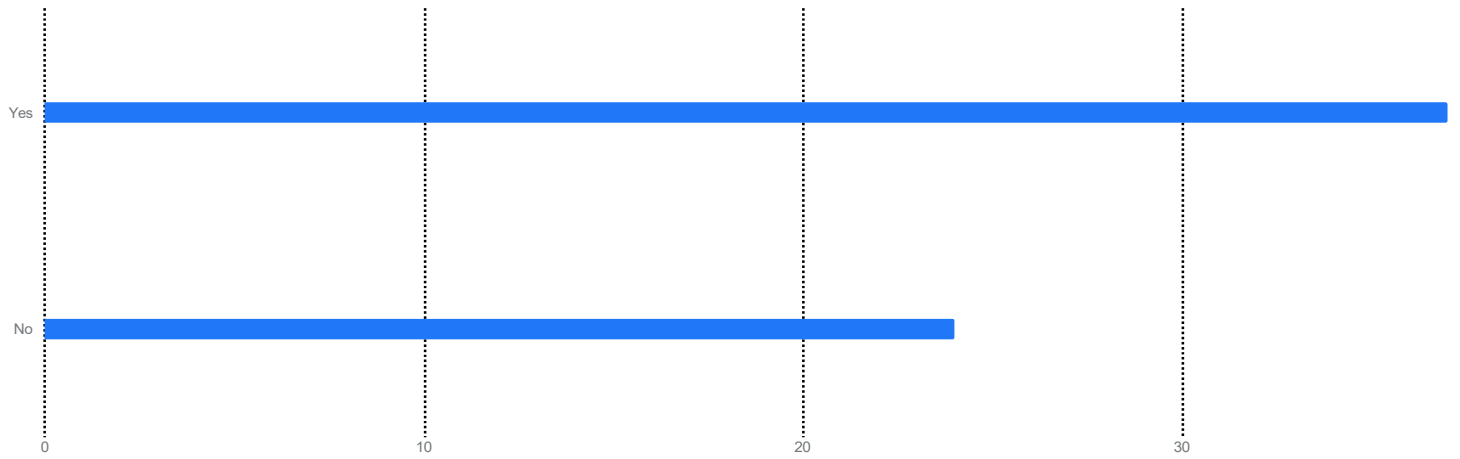
Participation in this escape room increased my confidence. 61

Q7 - Participation in this escape room increased my confidence.	Percentage	Count
Strongly agree	28%	17
Somewhat agree	36%	22
Neither agree nor disagree	21%	13
Somewhat disagree	10%	6
Strongly disagree	5%	3

Participation in this escape room increased my confidence. 61

Participation in this escape room increased my confidence.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	17
Somewhat agree	2.00	2.00	2.00	22
Neither agree nor disagree	3.00	3.00	3.00	13
Somewhat disagree	4.00	4.00	4.00	6
Strongly disagree	5.00	5.00	5.00	3

Did the escape room enhance your learning experience? 61



Did the escape room enhance your learning experience? 61

Q8 - Did the escape room enhance your learning experience?	Percentage	Count
Yes	61%	37
No	39%	24

Did the escape room enhance your learning experience? 61

Did the escape room enhance your learning experience?	Average	Minimum	Maximum	Count
Yes	1.00	1.00	1.00	37
No	2.00	2.00	2.00	24

If the escape room enhanced your learning experience, describe how. 61

If the escape room enhanced your learning experience, describe how.

Fun and engaging way to learn.

If the escape room enhanced your learning experience, describe how.

It allowed me to piece things together .

It was enjoyable and something which did not cause anxiety or dread about coming to class

It made me think more outside the box and logically. Also assisted in adapting to time pressure.

I thought it was a good way to show teamwork and other people's ideas or facts about the things we were looking for.

I think this is more on us, but we skipped some puzzles it seems. I imagine we missed some of the educational aspects which is not the fault of the lab.

Made learning enjoyable

It was more-so just a fun lab activity

It made learning more enjoyable and helped pull the concepts together for me.

Hands on learning

Relating all the topics to each other helped me to build new understandings about their connections.

Made it fun.

It allowed me to connect with my peers while working to understand the material which resulted in fun!

I just liked working in a team to find a "cure" for our patient.

It was fun to interact with the class material

It made it immersive and forced recall of the subject

Tied biology concepts into hints needed to solve the escape room.

If the escape room enhanced your learning experience, describe how.

It helped me see how other people thought through issues and allowed for me to use my understanding of a topic in a low stakes, problem solving way instead of as a ‘memorize this’ type of question

It was fun

It made me think and connect cell bio topics to the escape room.

I would say the escape room enhanced my learning experience by when we were looking at the fridge magnets and looking at the amino acids

It made it a lot more interesitng because it felt like we were playing a game. I really like playing games and winning-- In this case beating the timer-- so my engagement and ability to learn was high.

I thought it was an entertaining way to learn how to problem solve in a group setting using concepts from cell biology.

It was fun and made it more enjoyable but I’m not sure if it improved my knowledge

Made me focus on everything in the room and analyze the resources available

It made learning fun

I felt more engaged and focused.

It make learning more engaging and enjoyable. I also got to connect with some students that I haven’t before.

I think it is good to have to think on the fly, it helps to build memory

I enjoyed working with different people to solve one common goal

It didn’t seem to give any extra knowledge from what we had already talked about in lecture.

It was great to work with people I don’t normally work with and think through some of the questions

This was a good reminder to study conversions

Not in a significant way helped with units

If the escape room enhanced your learning experience, describe how.

It was a fun experience. It seemed like a break from regular class lectures and labs.

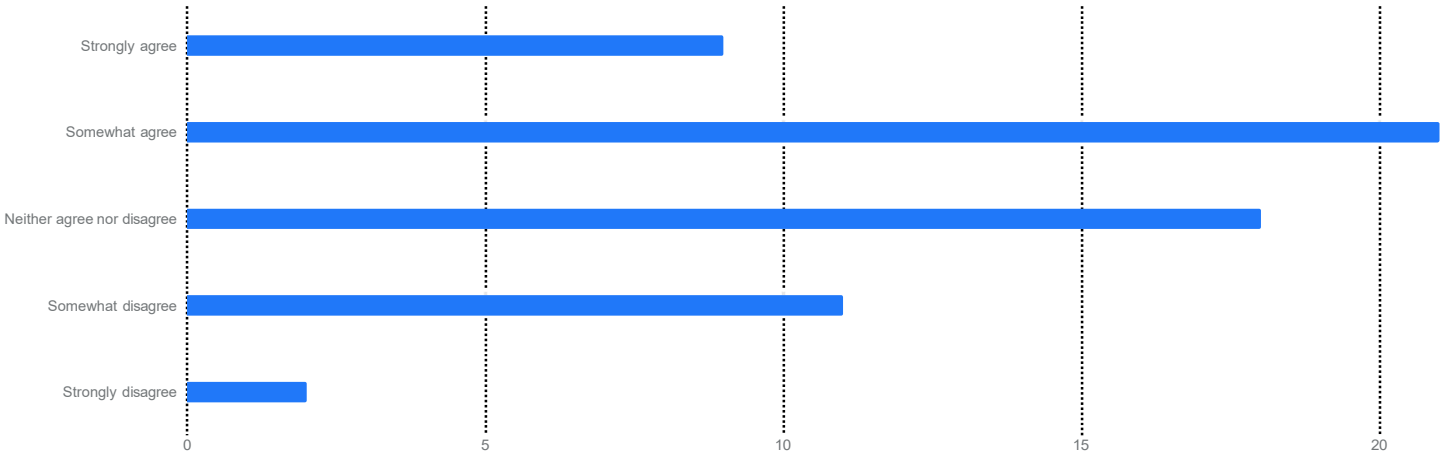
Encourages the idea of being knowledgeable.

It was a fun way to apply what we were learning in class that also allowed for collaboration.

It allowed me to learn or review things such as amino acid letters.

It made me recall the amino acid abbreviations.

This escape room has increased my knowledge of cell biology and how it relates to other disciplines. 61



This escape room has increased my knowledge of cell biology and how it relates to other disciplines. 61

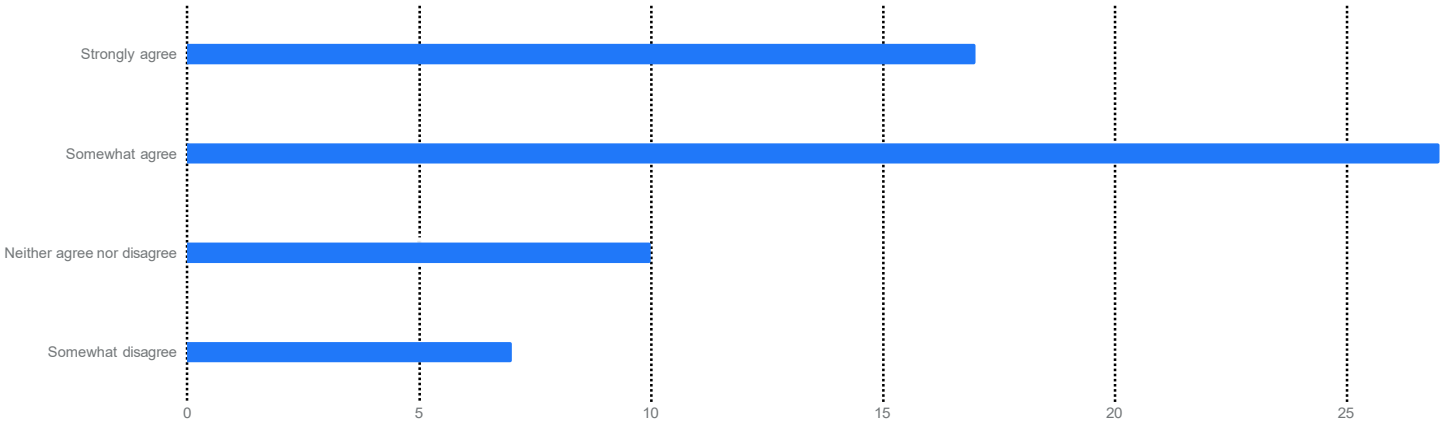
Q9 - This escape room has increased my knowledge of cell biology and how it relates to other disciplines.	Percentage	Count
Strongly agree	15%	9
Somewhat agree	34%	21
Neither agree nor disagree	30%	18

Q9 - This escape room has increased my knowledge of cell biology and how it relates to other disciplines.	Percentage	Count
Somewhat disagree	18%	11
Strongly disagree	3%	2

This escape room has increased my knowledge of cell biology and how it relates to other disciplines. 61

This escape room has increased my knowledge of cell biology and how it rela...	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	9
Somewhat agree	2.00	2.00	2.00	21
Neither agree nor disagree	3.00	3.00	3.00	18
Somewhat disagree	4.00	4.00	4.00	11
Strongly disagree	5.00	5.00	5.00	2

I have a better understanding for how different disciplines are connected to each other in solving real world problems such as applications to human health.
61



I have a better understanding for how different disciplines are connected to each other in solving real world problems such as applications to human health.
61

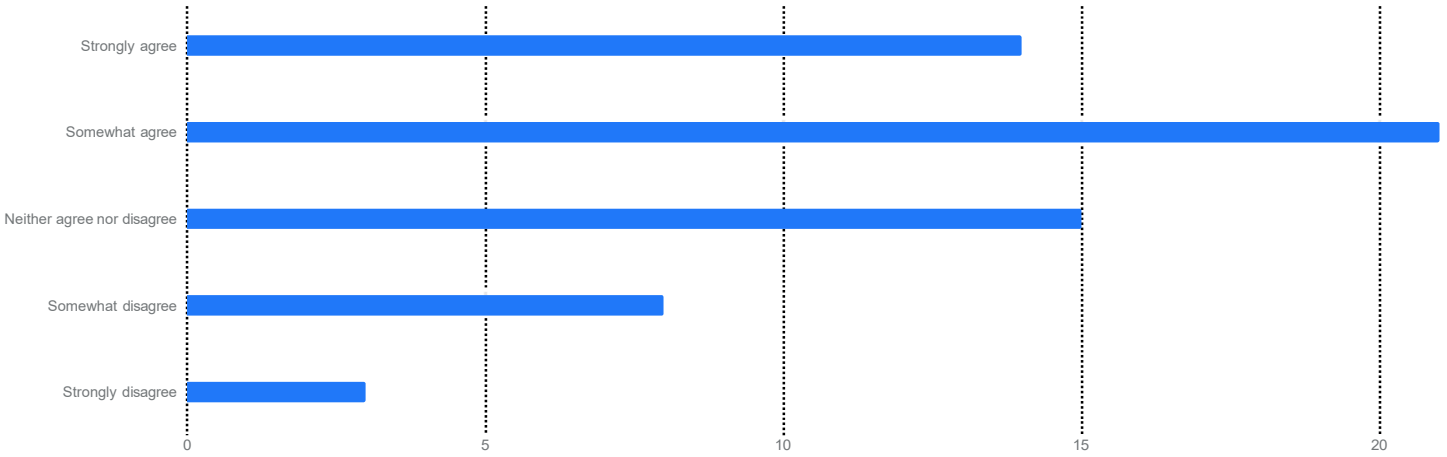
Q10 - I have a better understanding for how different disciplines are connected to each other in solving real world problems such as applications to human health.	Percentage	Count
Strongly agree	28%	17
Somewhat agree	44%	27
Neither agree nor disagree	16%	10
Somewhat disagree	11%	7

I have a better understanding for how different disciplines are connected to each other in solving real world problems such as applications to human health.

61

I have a better understanding for how different disciplines are connected t...	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	17
Somewhat agree	2.00	2.00	2.00	27
Neither agree nor disagree	3.00	3.00	3.00	10
Somewhat disagree	4.00	4.00	4.00	7

The use of puzzles and problem-solving increased my learning of this cell biology topic. 61



The use of puzzles and problem-solving increased my learning of this cell biology topic. 61

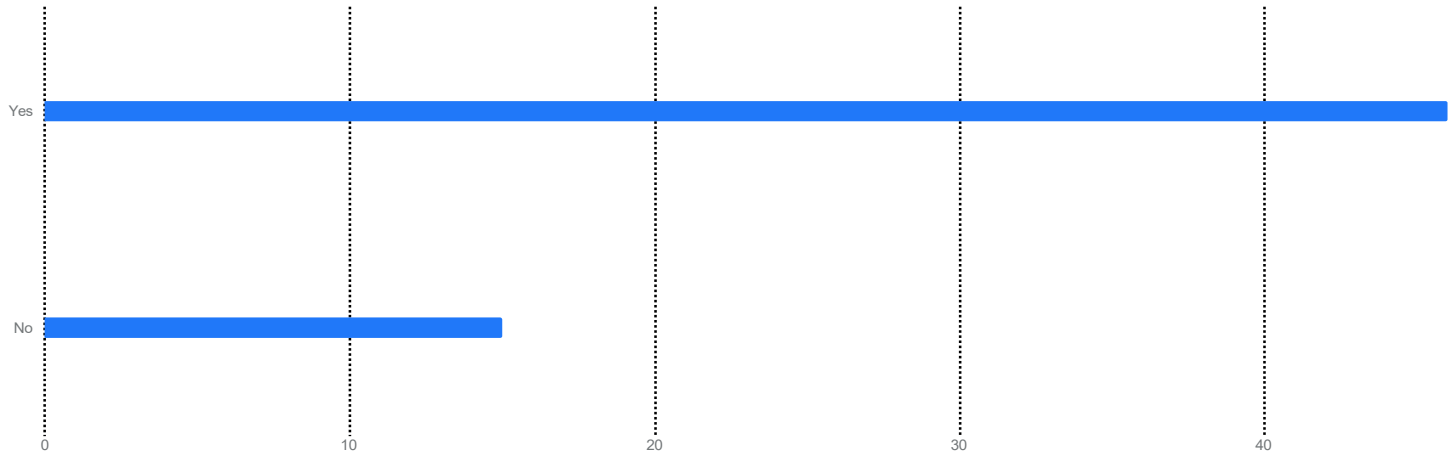
Q11 - The use of puzzles and problem-solving increased my learning of this cell biology topic.	Percentage	Count
Strongly agree	23%	14
Somewhat agree	34%	21
Neither agree nor disagree	25%	15
Somewhat disagree	13%	8
Strongly disagree	5%	3

The use of puzzles and problem-solving increased my learning of this cell biology topic. 61

The use of puzzles and problem-solving increased my learning of this cell b...	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	14
Somewhat agree	2.00	2.00	2.00	21
Neither agree nor disagree	3.00	3.00	3.00	15

The use of puzzles and problem-solving increased my learning of this cell b...	Average	Minimum	Maximum	Count
Somewhat disagree	4.00	4.00	4.00	8
Strongly disagree	5.00	5.00	5.00	3

Do you think problem-solving in the escape room resembled problem-solving healthcare professionals might use? 61



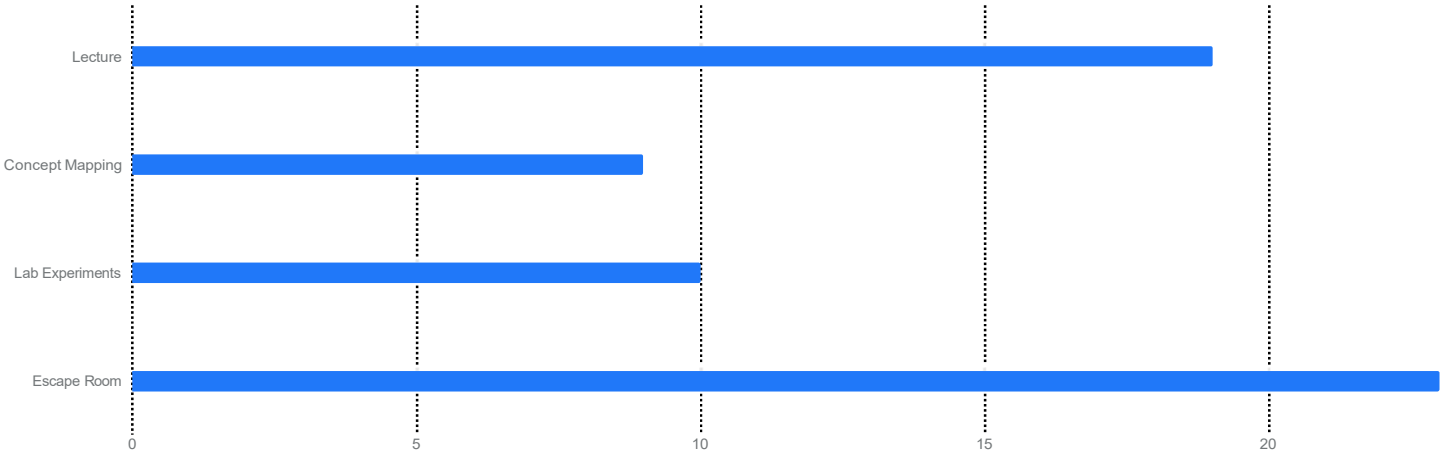
Do you think problem-solving in the escape room resembled problem-solving healthcare professionals might use? 61

Q12 - Do you think problem-solving in the escape room resembled problem-solving healthcare professionals might use?	Percentage	Count
Yes	75%	46
No	25%	15

Do you think problem-solving in the escape room resembled problem-solving healthcare professionals might use? 61

Do you think problem-solving in the escape room resembled problem-solving h...	Average	Minimum	Maximum	Count
Yes	1.00	1.00	1.00	46
No	2.00	2.00	2.00	15

Thinking about other activities during the semester, which activity was most effective at increasing your interest in cell biology? 61



Thinking about other activities during the semester, which activity was most effective at increasing your interest in cell biology? 61

Q13 - Thinking about other activities during the semester, which activity was most effective at increasing your interest in cell biology?	Percentage	Count
Lecture	31%	19
Concept Mapping	15%	9
Lab Experiments	16%	10
Escape Room	38%	23

Thinking about other activities during the semester, which activity was most effective at increasing your interest in cell biology? 61

Thinking about other activities during the semester, which activity was mos...	Average	Minimum	Maximum	Count
Lecture	1.00	1.00	1.00	19
Concept Mapping	2.00	2.00	2.00	9
Lab Experiments	3.00	3.00	3.00	10
Escape Room	4.00	4.00	4.00	23

Explain why you felt this activity was most effective at increasing your interest in cell biology. 61

Explain why you felt this activity was most effective at increasing your in...

The 3D DNA model building in lab did the best to take lecture concepts and apply them to hands on work.

Lectures throughly explains each topic. Looking at visuals things during lecture boosts my understanding in cell biology and most definitely increases my curiosity.

I just love physically seeing results. Makes me believe the science a little more and helps me understand the material

It's allows me to be hand on and actually see what I'm doing.

Concept mapping allows you to do fun research about things on your own which leads to reading interesting things.

Worked collaboratively and material was in line with lecture

It was a good way to move around and use other types of thinking skills.

Lecture gives me the actual knowledge of the topic

Being able to see these concepts applied hands-on and seeing it with my own eyes helps me to understand concepts very well.

I like competition so having a timed challenge made learning fun

Lectures inform me better about cell biology, but I enjoyed the escape room and I thought it was the most fun activity we have done.

Fun and learning

I think it was the most fun and engaging thing we have done in class so far!

I was able to read and label.

We were learning about the specific topics

Explain why you felt this activity was most effective at increasing your in...

I like going through the slideshows and taking in the information during class.

Same as the reason stated above.

It really ties everything together and you must have a good grasp on several subjects in order to move through the escape room swiftly.

It got me doing a lab experiment that was unique and got to collaborate with my peers.

It was very interactive and I really enjoyed having fun while also doing cell biology

It made it fun

Made some of these concepts fun and relatable to real life

Having a hands on experiment helps me be able to think through a concept and learn how it works.

This allowed me to understand when this information would be used again and how it connects to other jobs. As someone who struggles to find interest in cell biology alone, this created interest to learn about it

It was fun and interactive

It was very engaging

I think my brain just works off of establishing specific connections between visual components and then adding detail.

I felt that this activity was the most effective at increasing my interest because it was a hands-on activity and it helped to work with others.

Im not the best when it comes to learning about really detailed things, so this was really helpful.

I thought it was very fun, and made be enjoy a “lab” more

I am a hands-on learner and getting to see strawberry DNA and other things up close made me more interested

It was the most entertaining and enjoyable

This was the most effective because I felt the most engaged with the material and my peers.

I like hands on learning and mysteries so this checked all of my boxes

Explain why you felt this activity was most effective at increasing your in...

I learn best from independent study of lectures, but I think the activities are fun

I find lectures benefit my learning the greatest. Taking notes and listening to someone speak with images to support what they're saying does wonders for me.

It gave me the opportunity to learn in a different setting with the help from group members

By practicing problem solving skills needed in cell biology.

Piecing parts of the puzzle together to answer some of the questions

I felt like concept mapping was effective in showing how two factors are interconnected or related to each other

Drawing out the cell and mechanisms was a good reminder of what the basic cell components are

It is different

There wasnt much cell biology involved in the lab

The concept mapping, lab experiments, and escape room did not teach new information, and was more of review from other classes. For lecture, there were some new topics introduced

Lots of learning in a short period of time.

It was a fun and engaging activity.

It's the one I've learned the most in, a lot of the time the other activities feel like nothing but busy work

I like lectures and writing notes in class

this was the only activity so far that I feel i've been given correct information that pertains to the topic we're learning in class

I love hearing how this topic relates to other fields such are wildlife conservation.

I am a learner when the professor teaches us and walks through lectures

It wasn't boring and mimicked a real world scenario, albeit in a fun, silly way

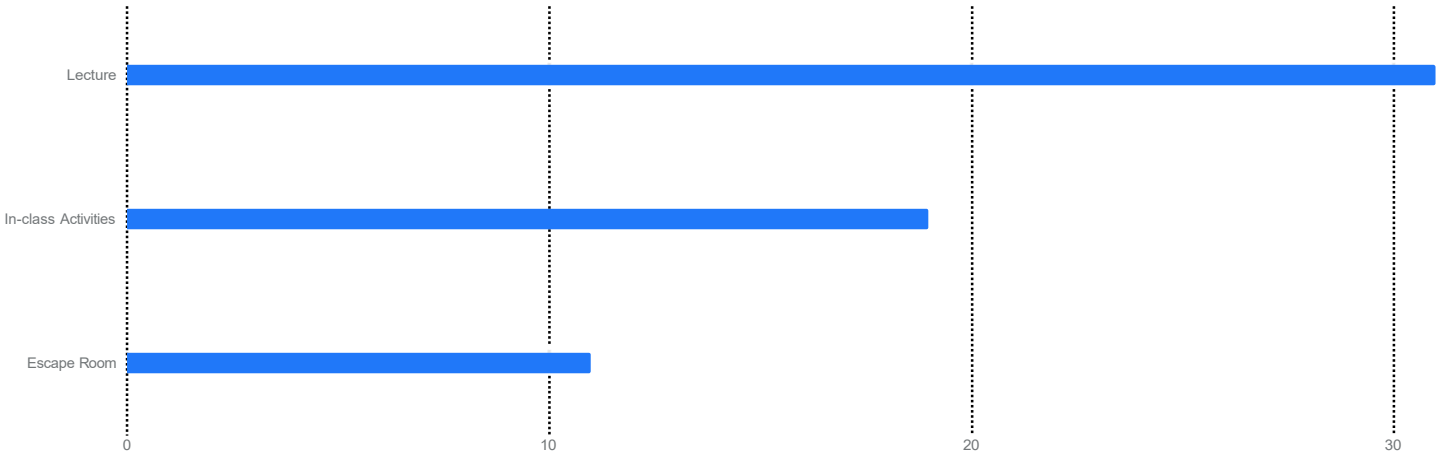
Because its hands on learning

They are fun to do and there is a learning aspect.

Explain why you felt this activity was most effective at increasing your in...

It was fun and engaging

What was your preferred method of learning protein structure and function? 61



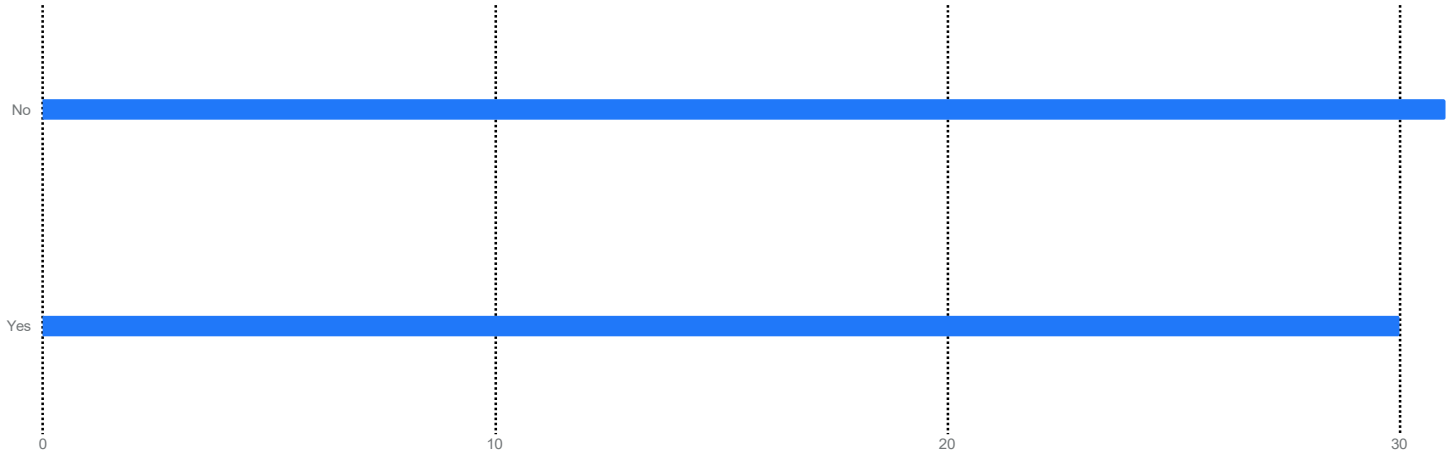
What was your preferred method of learning protein structure and function? 61

Q14 - What was your preferred method of learning protein structure and function?	Percentage	Count
Lecture	51%	31
In-class Activities	31%	19
Escape Room	18%	11

What was your preferred method of learning protein structure and function? 61

What was your preferred method of learning protein structure and function?	Average	Minimum	Maximum	Count
Lecture	1.00	1.00	1.00	31
In-class Activities	2.00	2.00	2.00	19
Escape Room	3.00	3.00	3.00	11

Did the combination of activities in the question above improve your understanding of protein structure and function better than using only one activity? 61



Did the combination of activities in the question above improve your understanding of protein structure and function better than using only one activity? 61

Q15 - Did the combination of activities in the question above improve your understanding of protein structure and function better than using only one activity?	Percentage	Count
No	51%	31
Yes	49%	30

Did the combination of activities in the question above improve your understanding of protein structure and function better than using only one activity? 61

Did the combination of activities in the question above improve your unders...	Average	Minimum	Maximum	Count
No	1.00	1.00	1.00	31
Yes	2.00	2.00	2.00	30

If yes, explain how. 61

If yes, explain how.

Helps me see how things work and how they can be applied to me and to the world.

I got to see the structures and how they apply

I enjoy having the combination so it makes class more bearable to be at. Specifically reinforcing knowledge with the dice game was helpful.

The collaboration aspect allowed us to learn from each other.

If yes, explain how.

I think the escape room and lecture are the best ways, the lecture builds a good foundational knowledge and the escape room is a good way to expand and apply the knowledge.

We had managed to somehow skip the entire protein building activity, so I am afraid we did miss some of the aspects…

It helped reinforce the ideas and concepts present in cell biology.

Multiple angles

I think learning things in many different ways enforces the topics into my head better.

It made me review the topic in multiple ways which allowed me to really solidify the information.

They compounded on each other so that I was hearing and experiencing the information more than just once.

It's repition, which is important, but it is done in different ways which is easier for me to engage with rather than seeing something over and over again on slides.

It gave multiple ways to learn the material

Being able to connect it to multiple activities helps me feel more confident and be able to recall it better.

It's a wider range of places to get info from

If yes, explain how.

The different ways of learning and wording things made me understand it in a newer and better way

More repeated information so I got to learn again and again

There were multiple parts to solving how and why the patient was sick

It allowed me to connect the "missing pieces" in my head and out it all together for an overall better understanding.

I learn by seeing and doing so only seeing one slide of protein structure helped a little but everything else made it stick more

Different activities on the same subject help reinforce the material

Different learning

Didn’t really go into specifics of protein structure rather than the clues of the escape room theme.

Starting with the lecture followed by an activity greatly increased my understanding

Hearing things multiple times really helps memorizing important information.

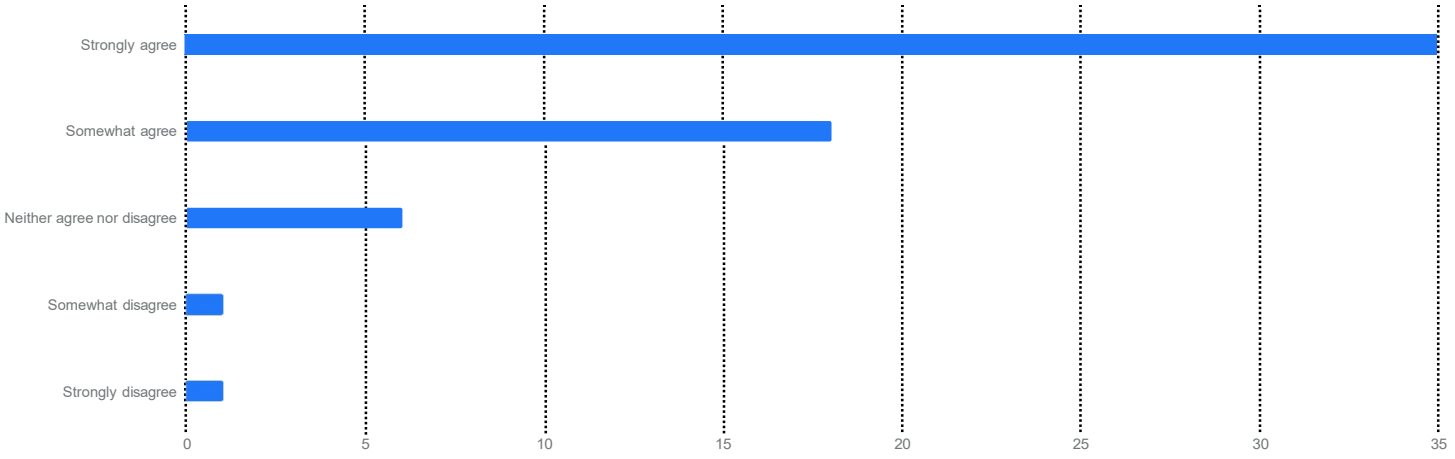
The amino acid game in class helped w repetition when learning the one letter codes. In the escape room we had to apply that knowledge to find a code

If yes, explain how.

Yes, it went over alpha and protein structure.

I like learning the topics in lecture and then applying them in ways such as the escape room

I enjoyed the team aspect of this classroom activity. 61



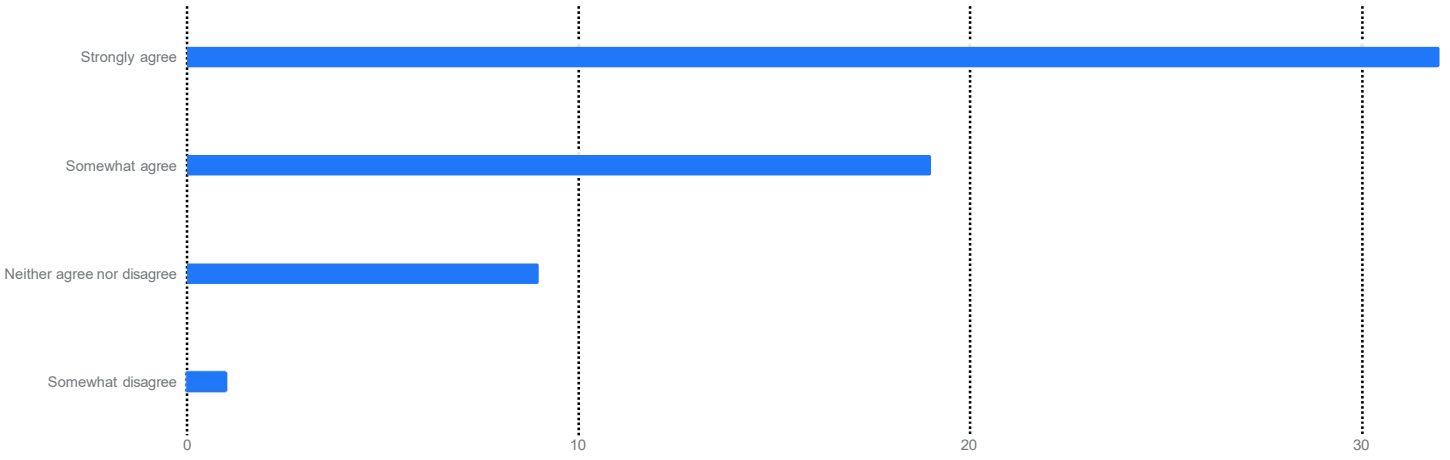
I enjoyed the team aspect of this classroom activity. 61

Q16 - I enjoyed the team aspect of this classroom activity.	Percentage	Count
Strongly agree	57%	35
Somewhat agree	30%	18
Neither agree nor disagree	10%	6
Somewhat disagree	2%	1
Strongly disagree	2%	1

I enjoyed the team aspect of this classroom activity. 61

I enjoyed the team aspect of this classroom activity.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	35
Somewhat agree	2.00	2.00	2.00	18
Neither agree nor disagree	3.00	3.00	3.00	6
Somewhat disagree	4.00	4.00	4.00	1
Strongly disagree	5.00	5.00	5.00	1

Working as a team supported my learning. 61



Working as a team supported my learning. 61

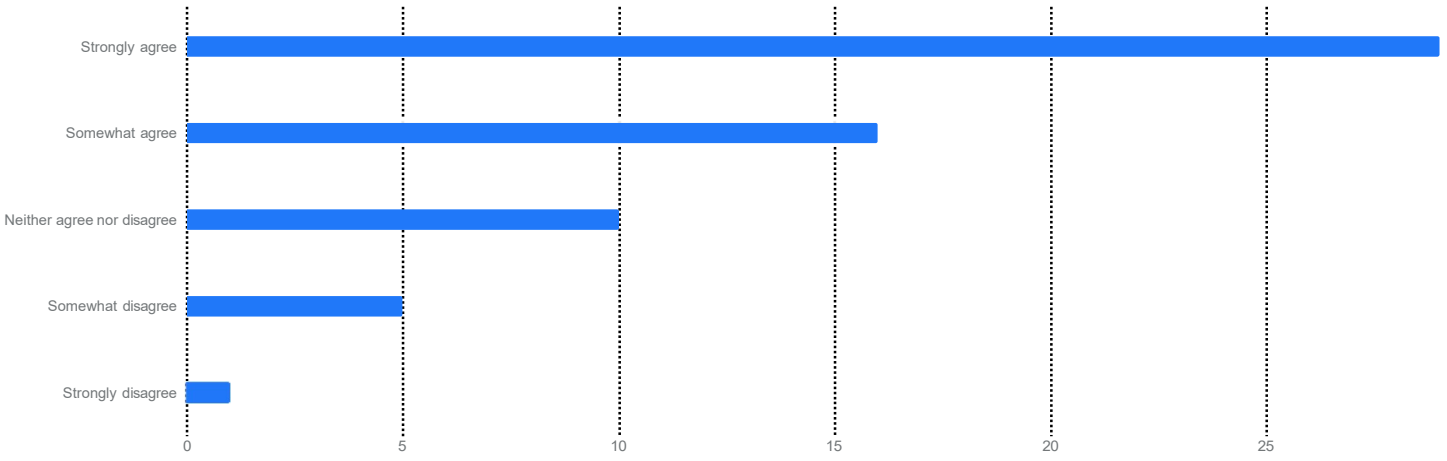
Q17 - Working as a team supported my learning.	Percentage	Count
Strongly agree	52%	32
Somewhat agree	31%	19
Neither agree nor disagree	15%	9

Q17 - Working as a team supported my learning.	Percentage	Count
Somewhat disagree	2%	1

Working as a team supported my learning. 61

Working as a team supported my learning.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	32
Somewhat agree	2.00	2.00	2.00	19
Neither agree nor disagree	3.00	3.00	3.00	9
Somewhat disagree	4.00	4.00	4.00	1

Working as a team increased my sense of belonging. 61



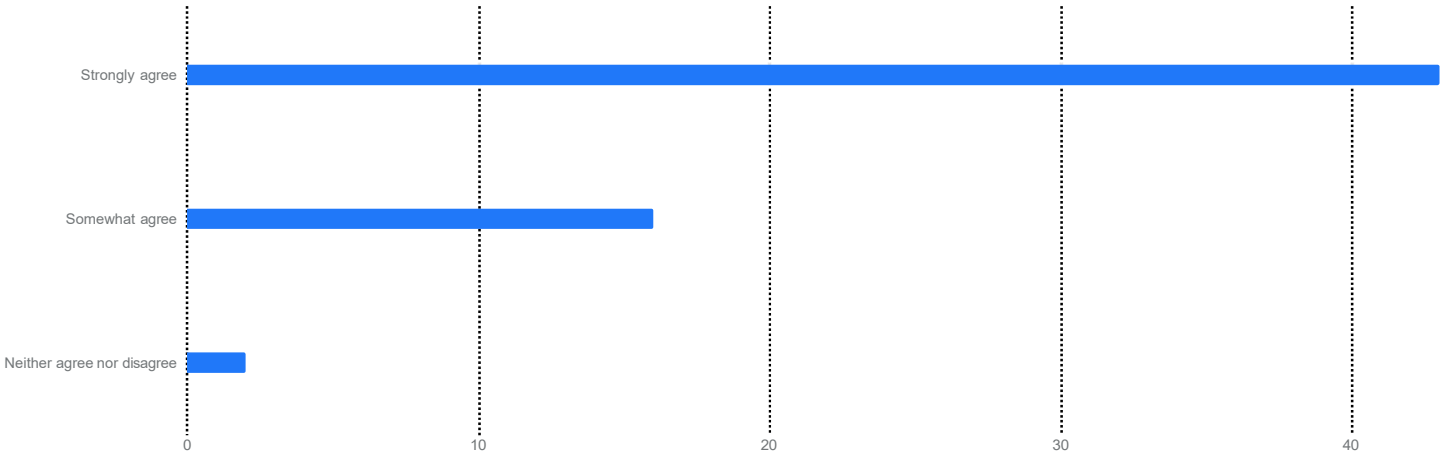
Working as a team increased my sense of belonging. 61

Q18 - Working as a team increased my sense of belonging.	Percentage	Count
Strongly agree	48%	29
Somewhat agree	26%	16
Neither agree nor disagree	16%	10
Somewhat disagree	8%	5
Strongly disagree	2%	1

Working as a team increased my sense of belonging. 61

Working as a team increased my sense of belonging.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	29
Somewhat agree	2.00	2.00	2.00	16
Neither agree nor disagree	3.00	3.00	3.00	10
Somewhat disagree	4.00	4.00	4.00	5
Strongly disagree	5.00	5.00	5.00	1

My team worked well together and communicated effectively. 61



My team worked well together and communicated effectively. 61

Q19 - My team worked well together and communicated effectively.	Percentage	Count
Strongly agree	70%	43
Somewhat agree	26%	16
Neither agree nor disagree	3%	2

My team worked well together and communicated effectively. 61

My team worked well together and communicated effectively.	Average	Minimum	Maximum	Count
Strongly agree	1.00	1.00	1.00	43
Somewhat agree	2.00	2.00	2.00	16
Neither agree nor disagree	3.00	3.00	3.00	2

Do you have any suggestions for future uses of an educational escape room in cell biology? 61

Do you have any suggestions for future uses of an educational escape room i...

Make it more difficult so that you can't just use intuition.

Nope

N/a

Future puzzles hopefully moreso related to course material, unfortunately I don't feel like I learned anything more by doing this escape room although it was still quite fun.

Increase the difficulty

Maybe include a video? Or a xray? Or having to use some equipment ex microscope, or mix chemicals that could fluoresce under uv with a code

Make the groups smaller and make it more content related.

I think making the puzzles more difficult to bypass would be good! The lab was fun and I can see the application and how it would be useful, but we managed to skip a lot of it. Fixing that so it's not possible would make it absolutely perfect!!

More about cell biology instead of codes and puzzles

Maybe using the actual structures of the biomolecules could make it more interesting.

Make the codes more related to the learning objectives

N/a

We should do this again!

I would make it geared towards topics that we need to learn.

Should include more biology components. A lot of it was code finding based. It didn't really have much problem solving if people who have done escape rooms are in the group since they figure the codes out fairly quickly. Those already familiar with the concepts of amino acids quickly solved the puzzles, but this did not enhance the learning much of those who did not (if you ask me) since there wasn't much communication. It has potential to be engaging since people are hands on learners. However, I think it's probably better suited as review over a subject. If they have just learned the subject or aren't as familiar, then you cannot go as in depth with the concept. A regular lab experiment would be more engaging and enriching otherwise. I have an interest for biology, but I felt this lacked a lot of components concerning why biology is fascinating. I found lecture to be more interesting with new concepts and all, and I enjoy doing lab experiments where I work with specimens, etc.

Do you have any suggestions for future uses of an educational escape room i...

Na

It could be more complicated

n/a

Use it! It was very fun

"Start" at the beginning to let us know time would begin. Otherwise, this was very fun.

I think it could have been a bit harder, but other than that it was very fun

N/A

I thought this one was amazing and well set up!

No! This was fun

More complex. Focuses a little more on the overall topic.

I would incorporate more terms and interacitve things on the study guide, like having us figure or match amino acid codes or something along those lines

Do you have any suggestions for future uses of an educational escape room i...

Incorporate more cell bio concepts into the escape room

I didn't learn very much from this experience but it was fun

NA

the groups were almost too big for everyone to look at things and make them effective.

this didn't really have information in it that we would need for the exam

Require more knowledge to escape!

Add more cell biology terms

I would make it harder and have the topics be slightly more obvious. I felt like certain puzzles we could solve without needing any cell bio knowledge