HELPING STUDENTS EVADING MATH PROBLEMS

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The Cone of Learning

sparkinsight.com

I see and I forget.
I hear and I remember.
I do and I understand.
— Confucius

Source: Edgar Dale (1969)

DigitALL: Innovation and Technology for Gender Equality

https://gtechlearn.com

WHO IS Gen Z?

They're the Class of 2019. A generation one million larger than Millennials. This year, Gen Z will enter the workforce in huge numbers, and employers are on board.

1 Birth Year
Born after 1996.

2 Graduate
Gen Z graduated High School in 2019.

3 Ethnicity
Nearly 50% of Gen Z are non-white.

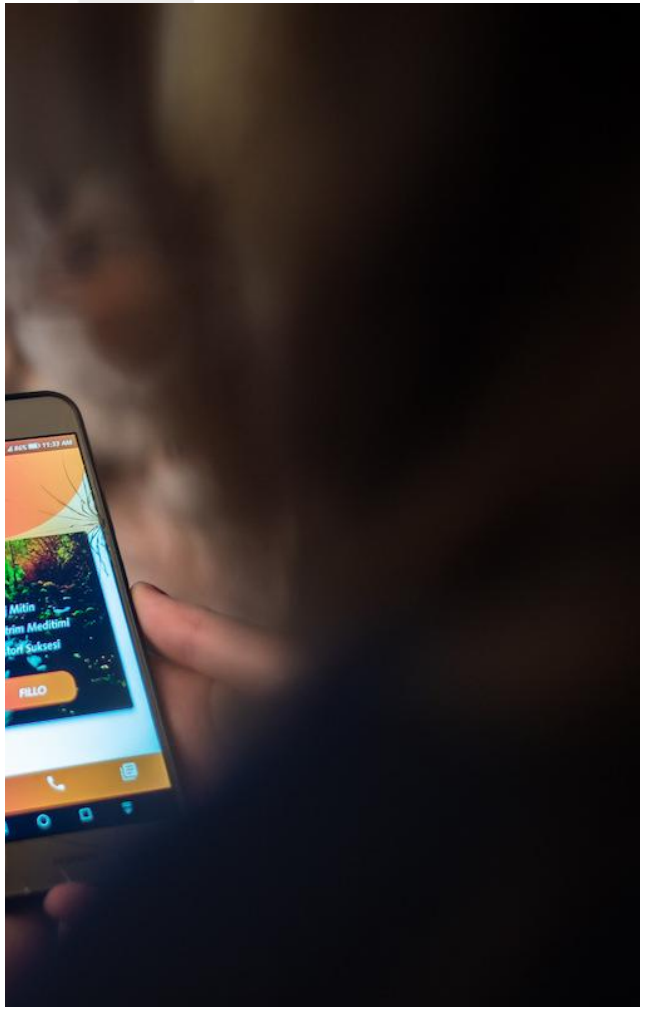
4 First Job
54% believe their first job will come through digital/social connections

5 Confidence
52% are more confident in their tech skills than soft skills.

6 Technology
First 100% digitally native generation.

Modern Hire

SOURCES: Pew Research, MarketingCharts.com, Snap Inc., Monster, Dell Technologies



Health care

Higher education

Mental health

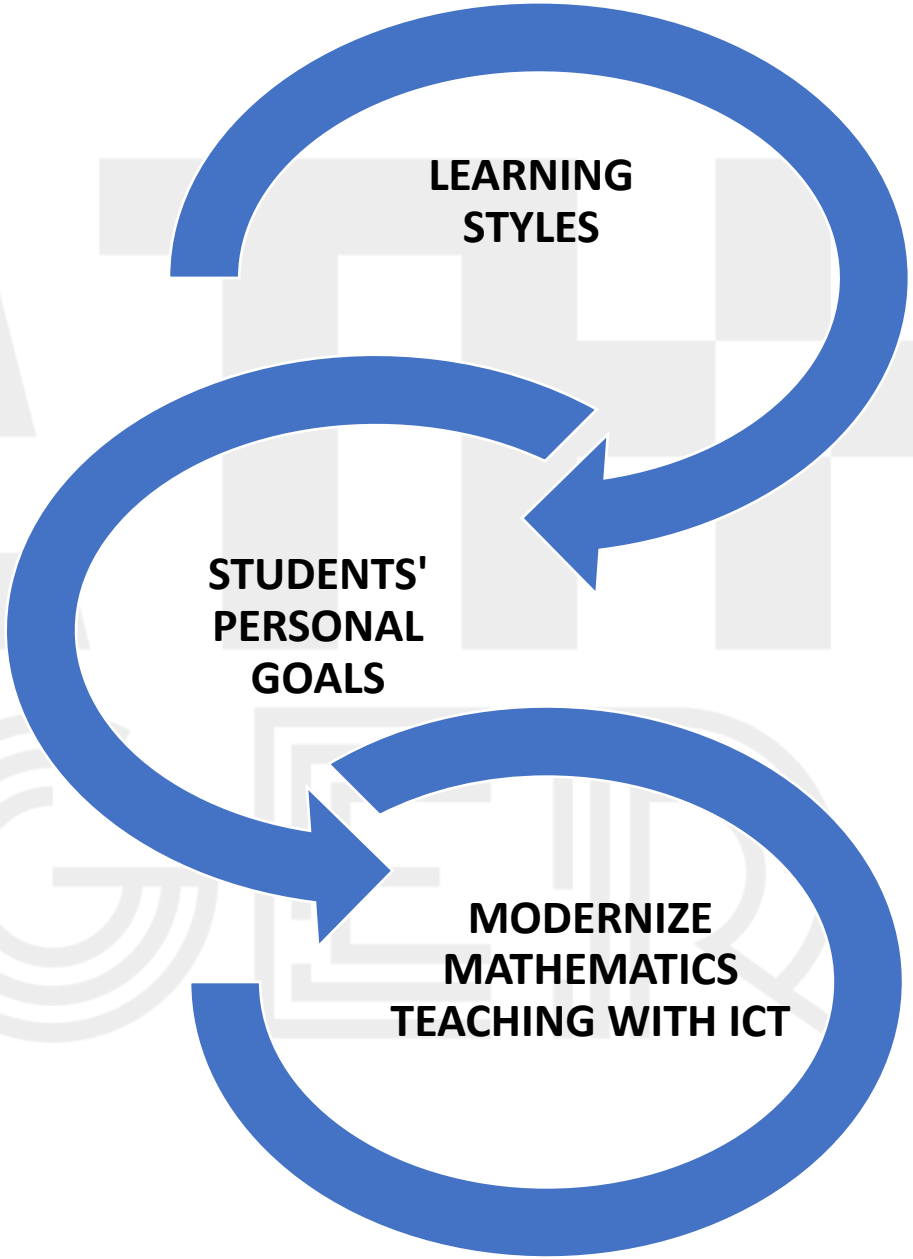
Race equality

Economic security

Environment

- Generation Z wants to learn practical, real-life skills and highly value hands-on experiences like internships.
- This places a heavy emphasis on education, creating a growing demand for new forms of teaching.
- 79% of Gen Zers would like to integrate their higher education experience with employer internships.

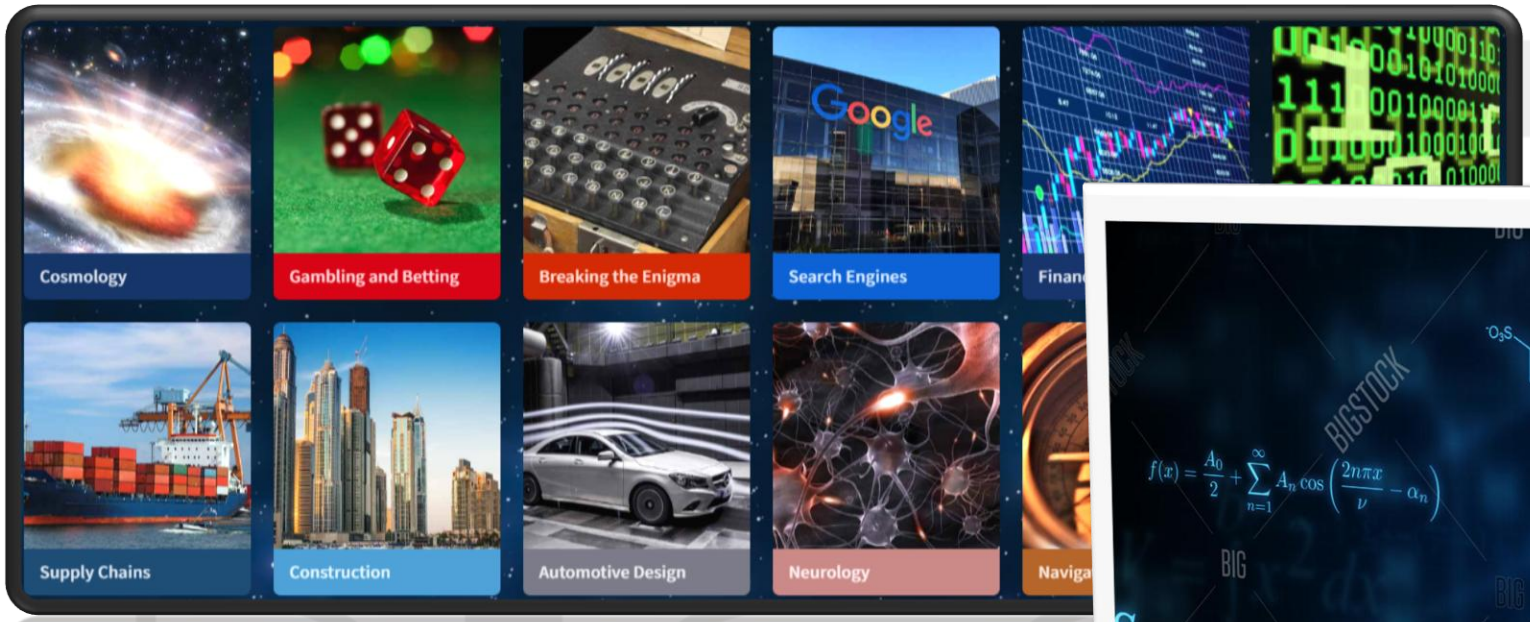
EMPATHY/TRUST/STUDENTS' EMPOWERMENT



Soft skills


Conflict management
Responsibility
Teamwork
Critical thinking
Self-motivation
Leadership
Communication

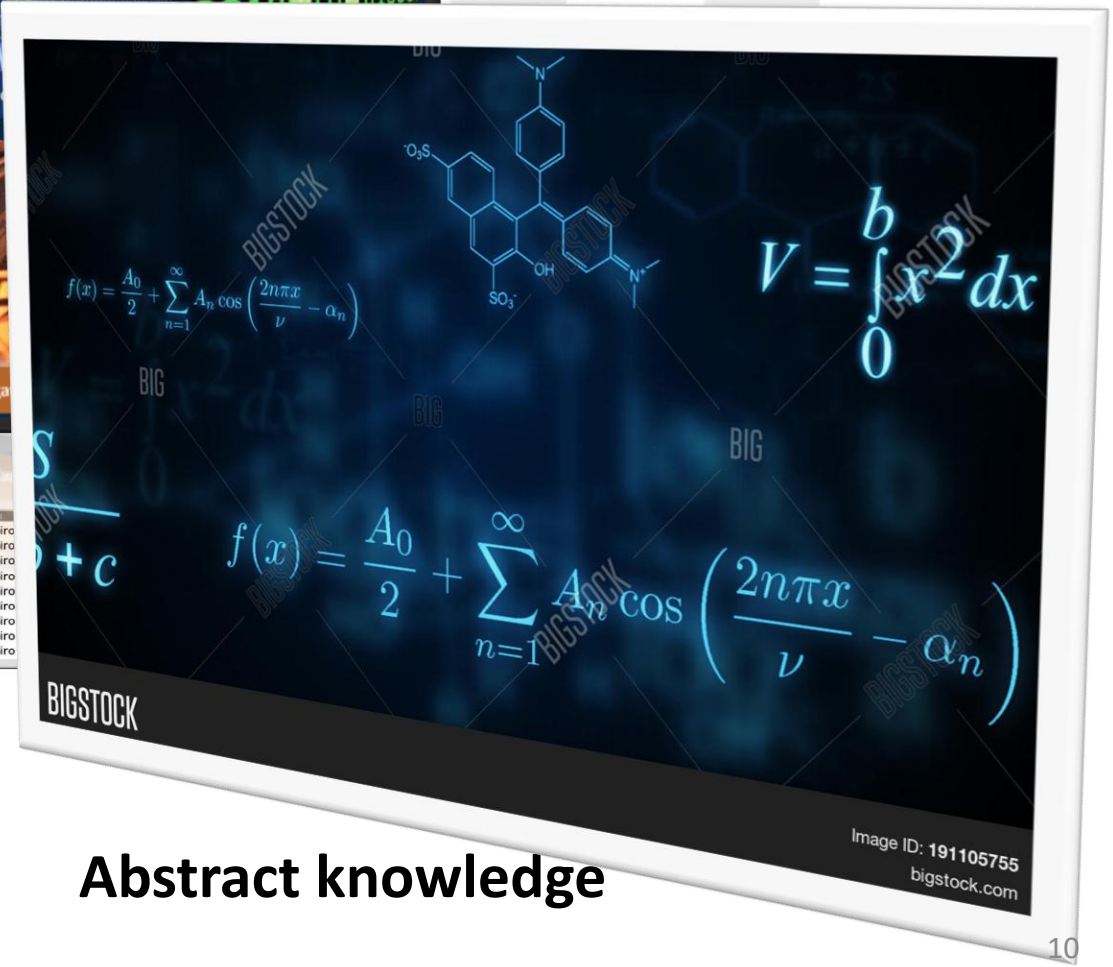

Hard
Prog
Rock
YES
Glitter



Applications

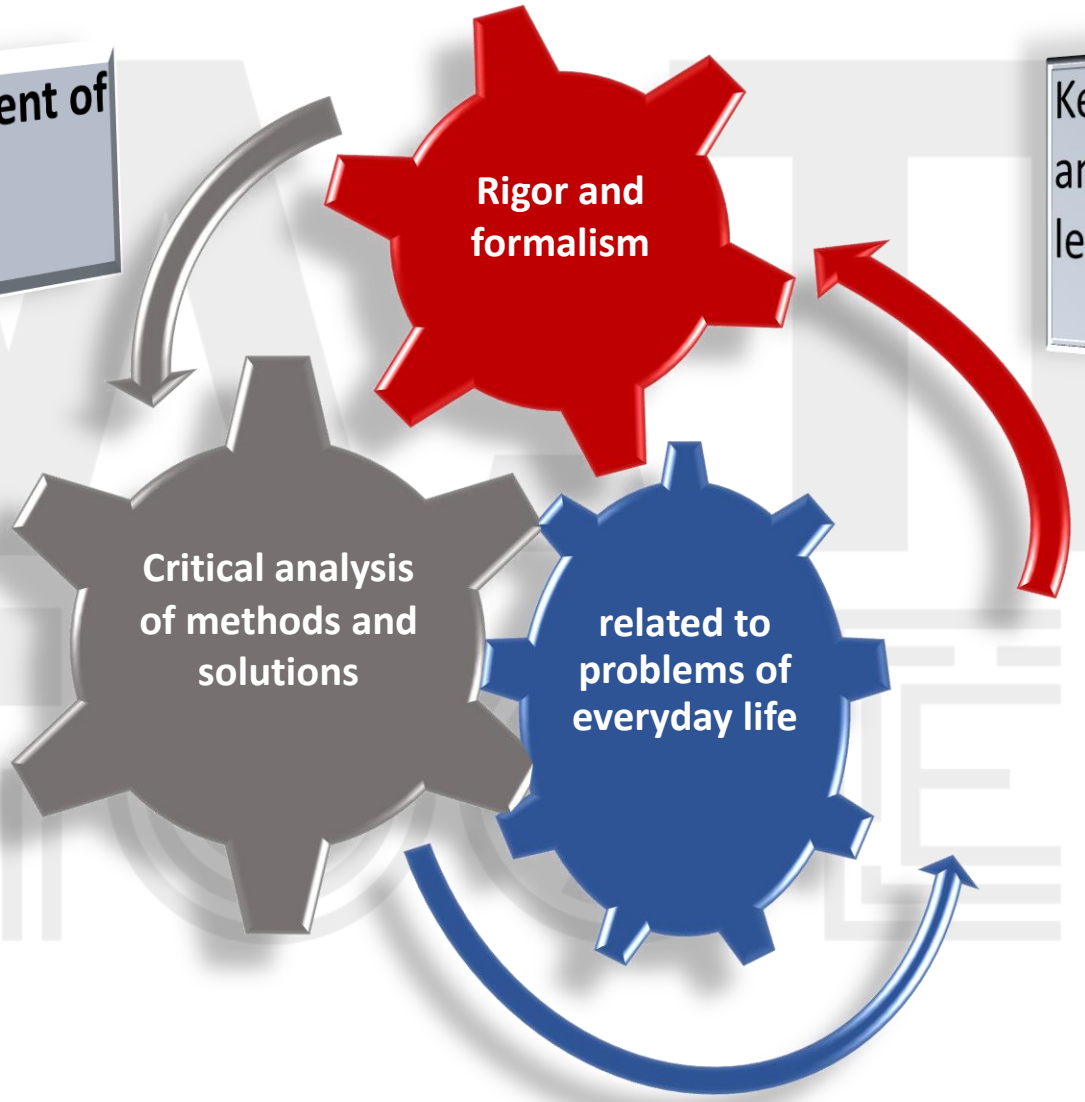
Right balance

Figure 10.10 Squad *C* – beats in the solution obtained by the algorithm.



Abstract knowledge

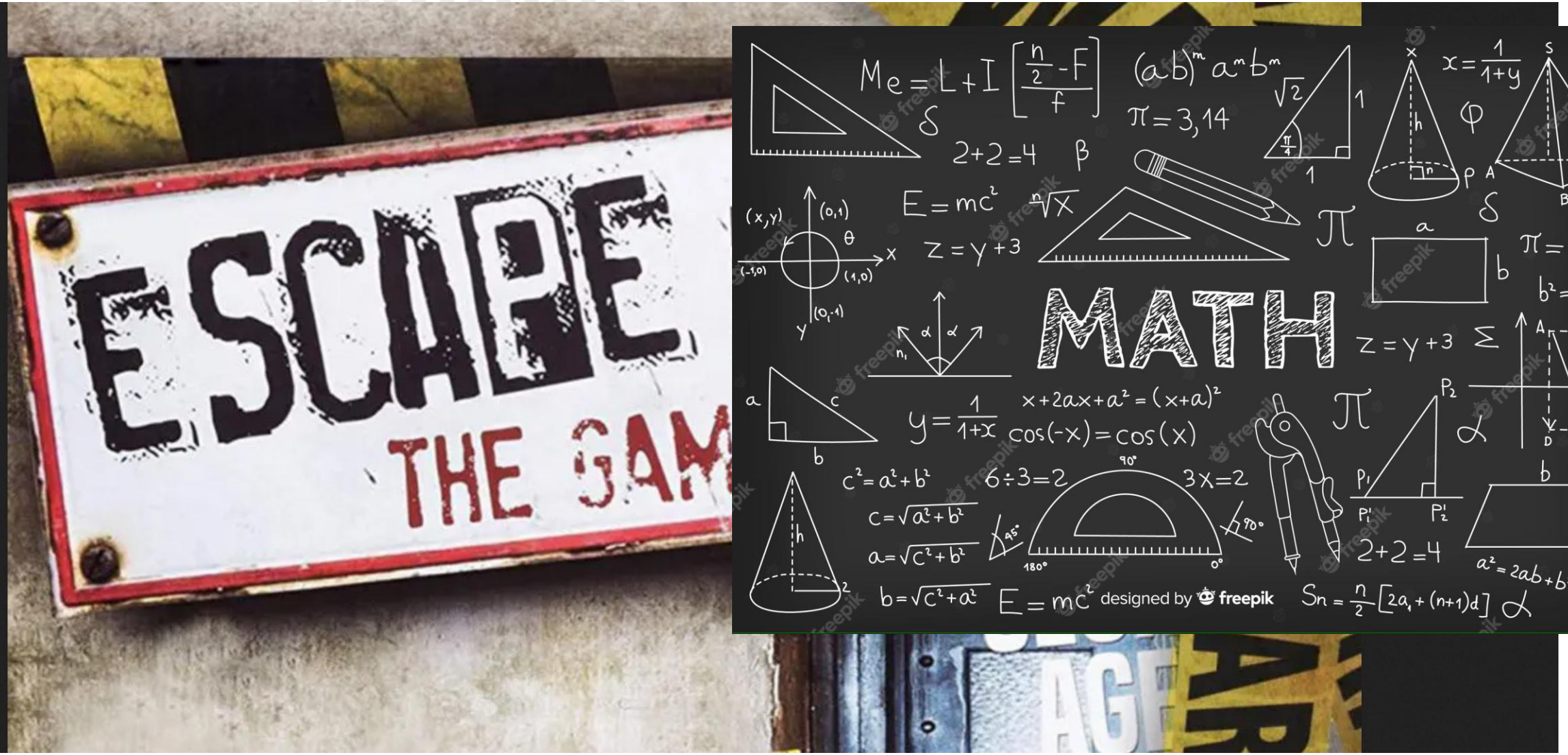
Teaching and assessment of mathematics



Keep students engaged and active in their learning

Recognize students' achievements and help where they fail or struggle


AGILE in
EDUCATION


ESCAPE
THE GAM
MATH
designed by freepik

Cordyceps – the fungus

- *Ophiocordyceps unilateralis*, otherwise **known as cordyceps or zombie-ant fungus**, infects insects such as ants or spiders.
- Like other parasites, cordyceps **drains its host completely of nutrients before filling its body with spores** that will let the fungus reproduce.
- It then compels the insect to seek height and remain there before it expels these spores, infecting other nearby insects in the process.

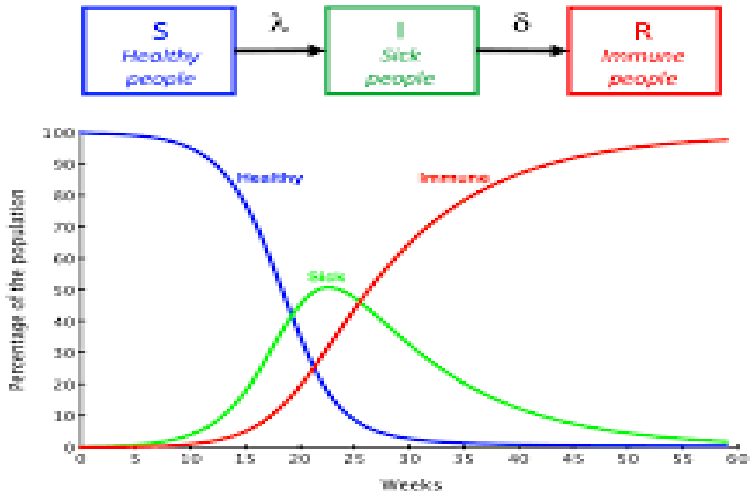
It zombifies you!

Effects

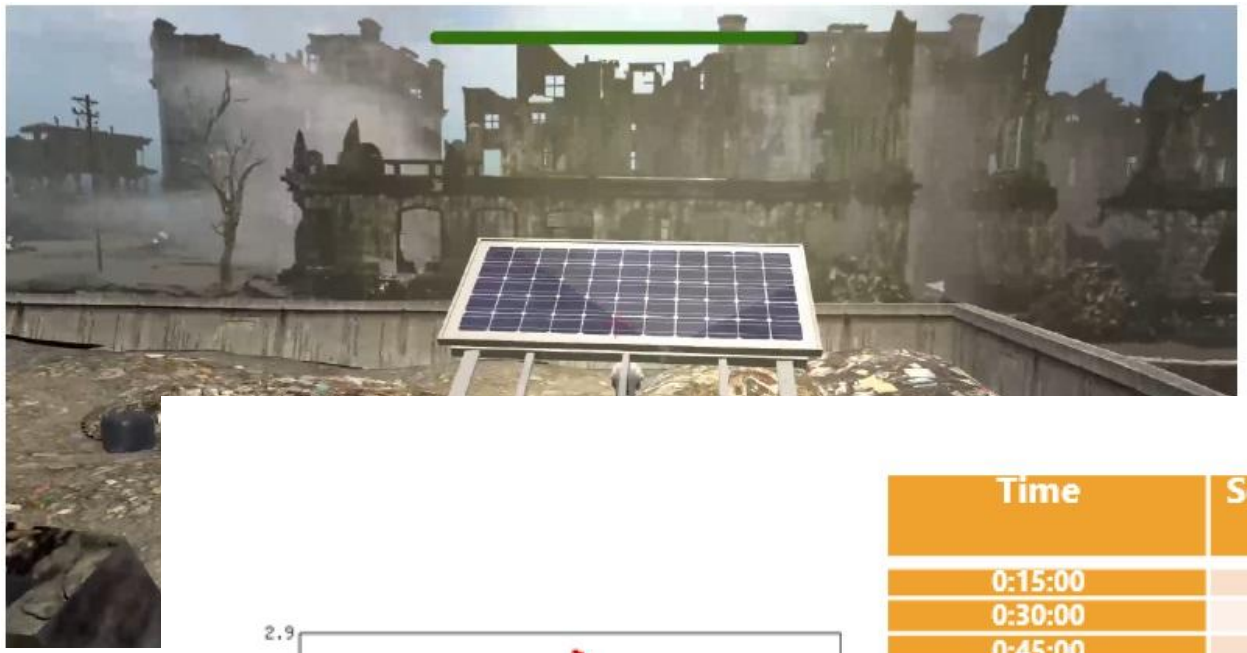
- In **tropical, subtropical, and even temperate forests around the world, there are many species of fungus** in the genuses Cordyceps and Ophiocordyceps (these fungi were formerly called just Cordyceps) that infect insects like ants and other invertebrates.
- And they do essentially turn them into zombies. **The fungi take over their minds and bodies**, causing them to behave in such a way as to spread spores to others of their kind.

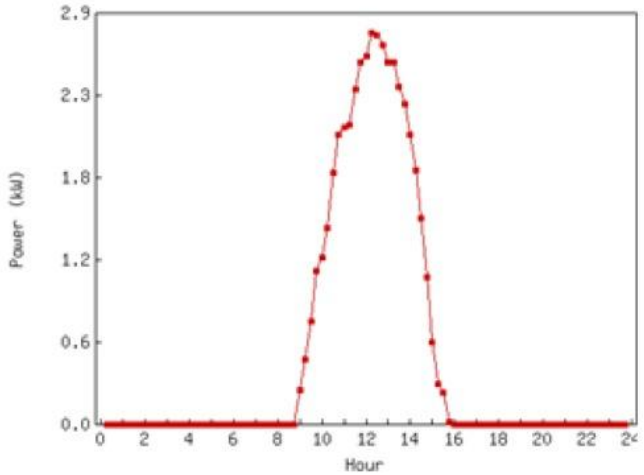
Steps

- Get to the scientist and produce the antidote.
- Predict the number of people infected because resources are very limited (SIR model)



Could the Cordyceps Fungus Really Take Over?





Time	Solar Panel Power Output	Time	Solar Panel Power Output
0:15:00	0	12:30:00	2.77567
0:30:00	0	12:45:00	2.71062
0:45:00	0	13:00:00	2.58906
1:00:00	0	13:15:00	2.58657
1:15:00	0	13:30:00	2.41105
1:30:00	0	13:45:00	2.29156
1:45:00	0	14:00:00	2.07011
2:00:00	0	14:15:00	1.81613
2:15:00	0	14:30:00	1.47564
2:30:00	0	14:45:00	1.05591
2:45:00	0	15:00:00	0.588483
3:00:00	0	15:15:00	0.291857
3:15:00	0	15:30:00	0.231948
3:30:00	0	15:45:00	0.020073
3:45:00	0	16:00:00	0
4:00:00	0	16:15:00	0
4:15:00	0	16:30:00	0
4:30:00	0	16:45:00	0
4:45:00	0	17:00:00	0

The Story behind the Second Escape Room

But the students didn't stop there. Recognizing the importance of sustainable living in a world scarred by destruction, they set out to incorporate eco-friendly elements into their new community. They installed water collection systems to harvest rainwater, ensuring a steady supply for drinking and sanitation. Wastewater was treated and recycled, minimizing waste and conserving precious resources.

Solar panels adorned rooftops, harnessing the power of the sun to provide energy for their growing settlement. With each panel installed, hope flickered to life, illuminating the darkness that had consumed their city. It was a symbol of resilience, a beacon of progress shining bright against the backdrop of devastation.

The Story behind the Second Escape Room

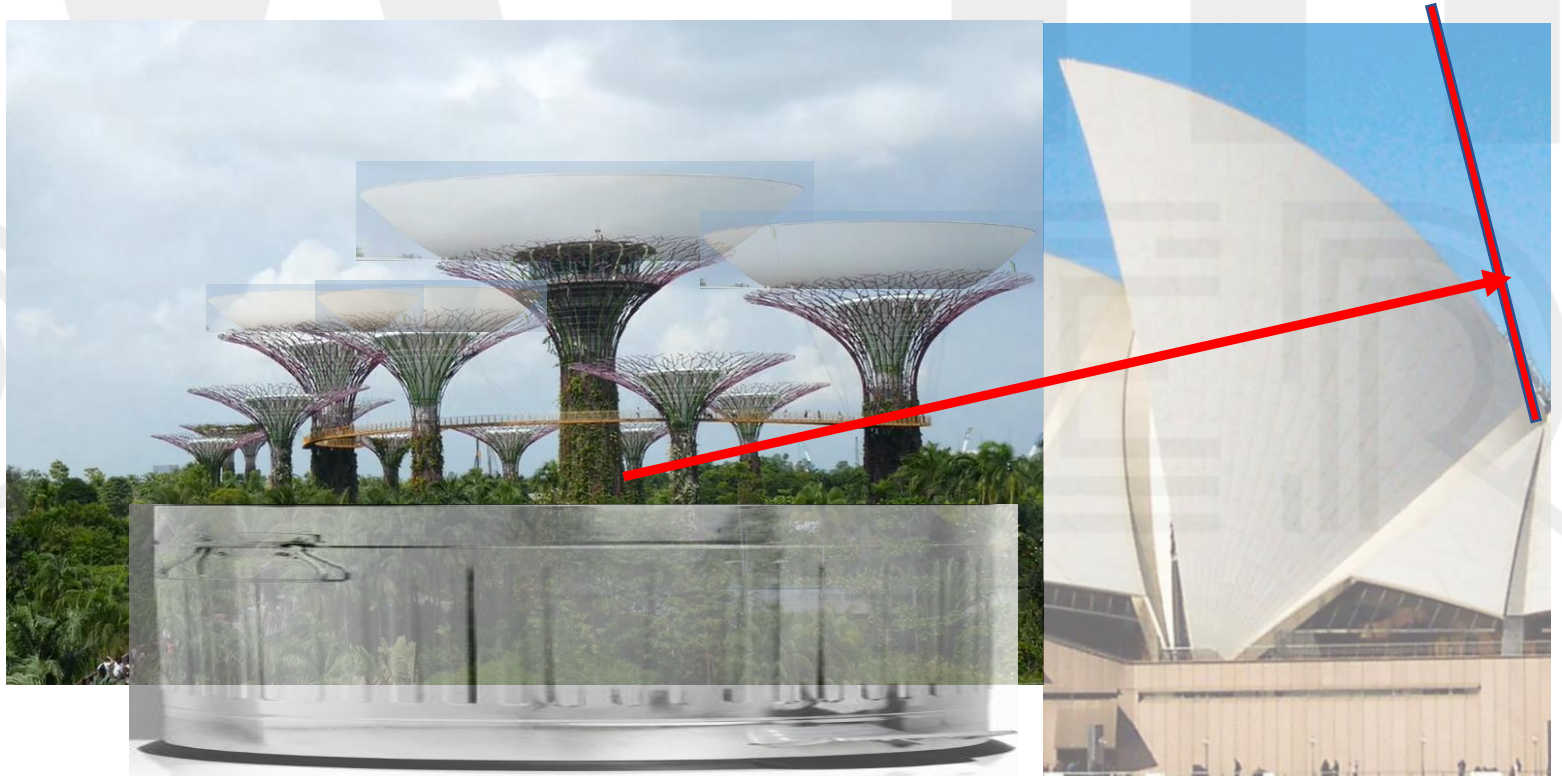
As their community took shape, so did their sense of unity and purpose. The students worked tirelessly, their hands blistered, and their spirits tested, but never once did they hesitate in their resolve. Together, they built not just homes, but a place of hope.

As the sun set, on their makeshift city, casting golden shades over their humble houses, the students party together, proud and resilient, ready to face whatever challenges lay ahead. For in destruction, they had found not just despair, but also the strength to rebuild, brick by brick, and to forge a future filled with hope.

Game tutorial

Main goal: Students need to design a residences complex, with water reservoirs and wastewater deposits. They will also determine the exact spot for solar panels to produce the necessary energy.

ENVIRONMENTAL CONSCIOUS OASIS – ECO-ER



AT THE END STUDENTS MIGHT WIN STARS FOR

Mathematic achievements – most valued (80%)

Collecting objects in each room to be used in the next room

Collecting at #room 4, for the final party,

- **food, beverages, musical items, decoration items**

At each room information of the students backpack contents needs to be updated.

In the end the value given is equal $\frac{\#\ collected}{total} \times 20\%$

CASE STUDY ECO-ER MAP

START HERE

BUILDINGS

BRIDGES

WATER

ENERGY

GAME OVER

PARTY TIME

Room #3 – Water

To be sustainable, the wastewater used at students' residences must be collected by cylindrical form deposit that will be constructed underground, as can be observed in Figure 5.

Knowing the radius of the residence zone, the radius of the cylindrical deposit is also known. Therefore, given the value of the wastewater lateral surface, A_L, the student is invited to determine the height of the deposit (simply using the formula ($A_L = 2\pi \times radius \times height$).

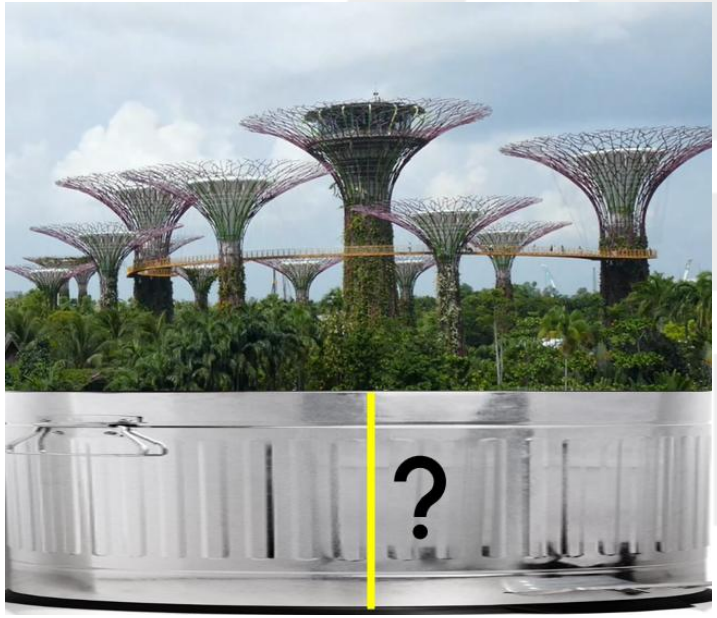
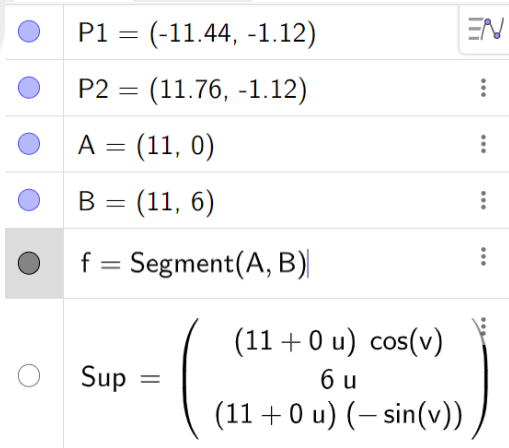
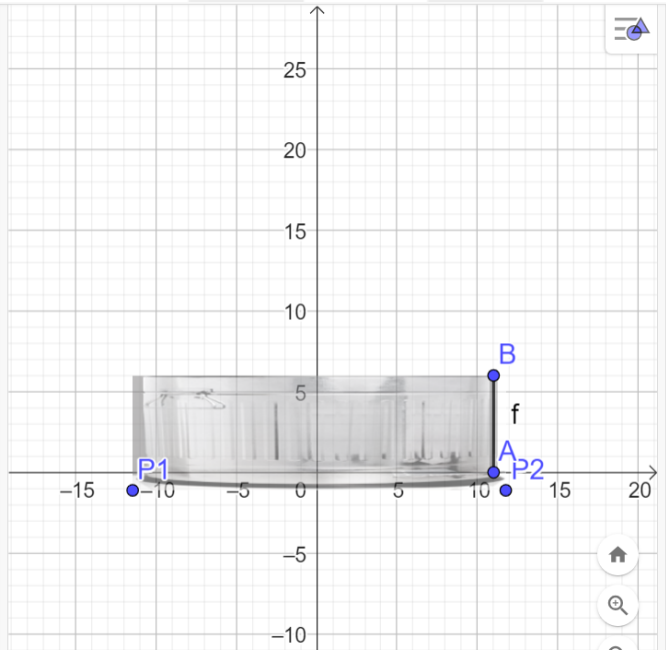
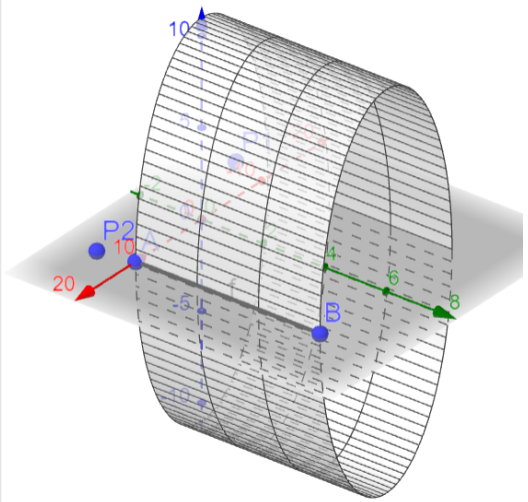


Figure 5. – Wastewater deposit





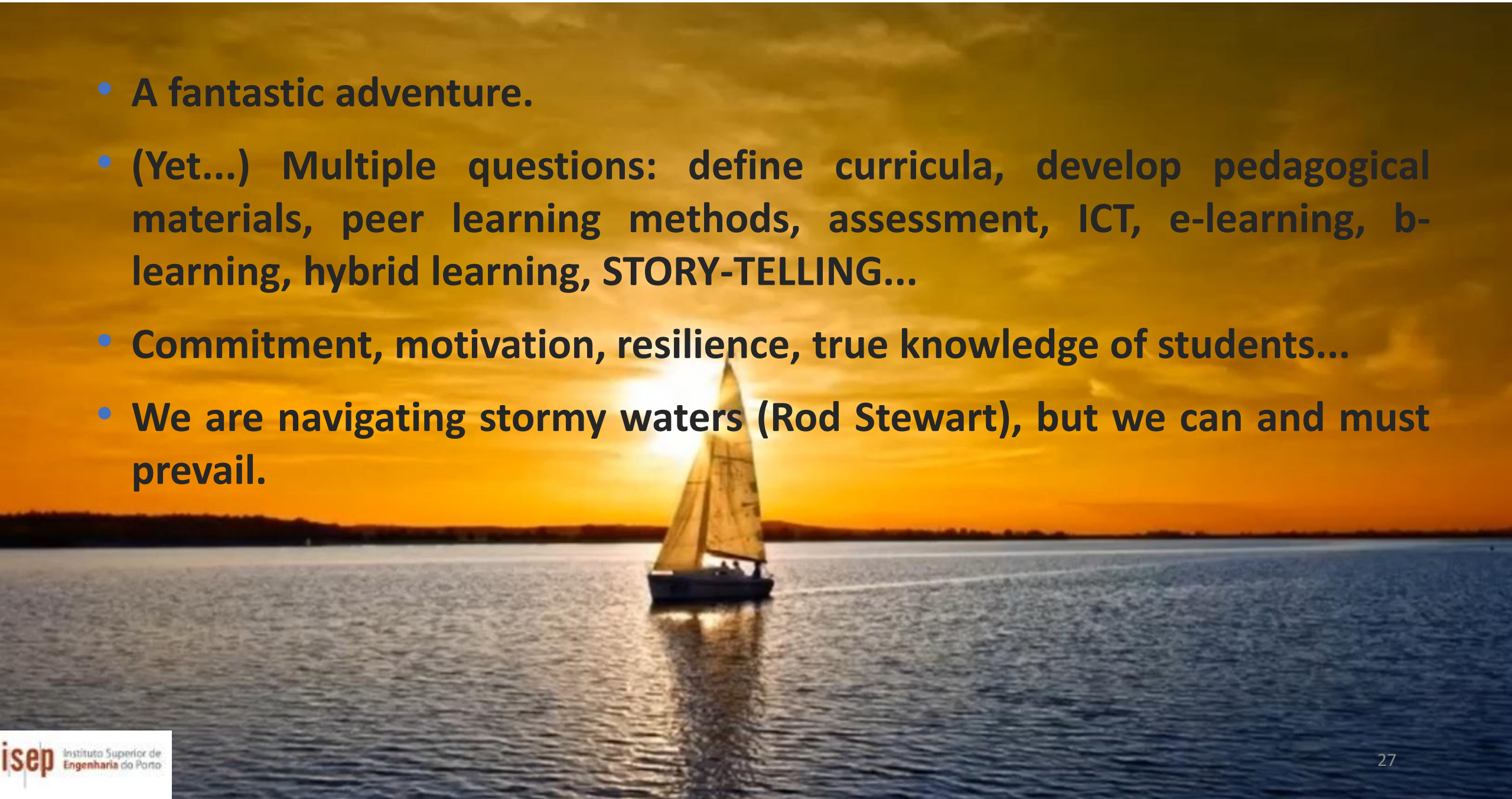


See file underground cylinder deposit.ggb

Escaping Room

After concluding all calculations, the complete construction will appear outside the laboratory.

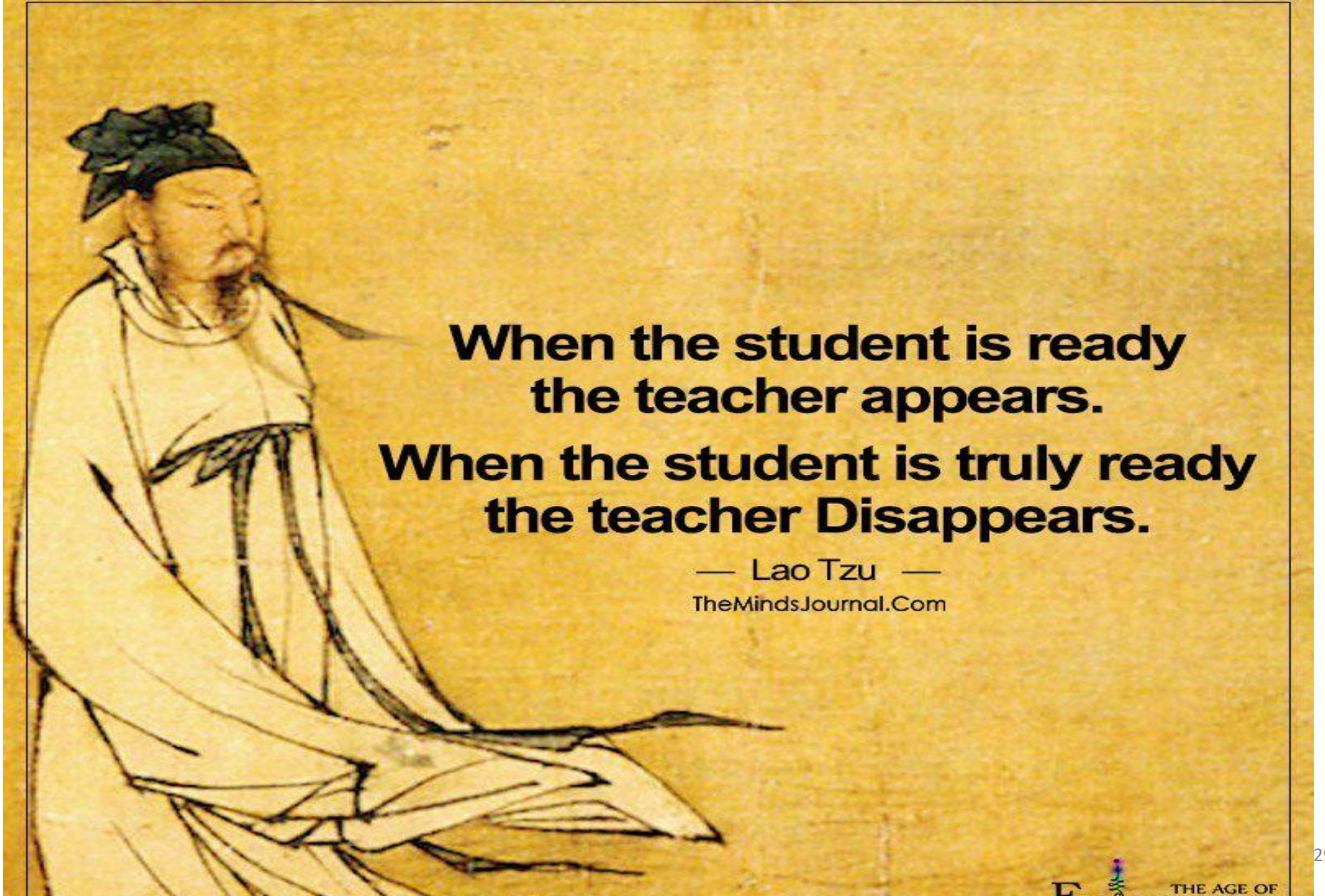
Students will get out of the escape room and organize a **HUGE PARTY** to celebrate LIFE with all their friends**!!!!**



- A fantastic adventure.
- (Yet...) Multiple questions: define curricula, develop pedagogical materials, peer learning methods, assessment, ICT, e-learning, b-learning, hybrid learning, STORY-TELLING...
- Commitment, motivation, resilience, true knowledge of students...
- We are navigating stormy waters (Rod Stewart), but we can and must prevail.

Success consists of going from **failure to failure** without loss of enthusiasm.

- Winston Churchill


When the student is ready
the teacher appears.
When the student is truly ready
the teacher Disappears.
— Lao Tzu —
TheMindsJournal.Com
THE AGE OF

THANK YOU!

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