Speak, Think, Enjoy, Master, Artify STEAM

Alenka Taslak, PS Dore Pejačević, Našice
Lidija Šaravanja, PS V. Nazor, Čepin

HUPE Meeting 2022

Poreč

STEAM

What?

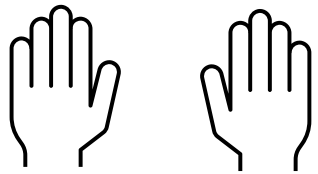
Why?

How?

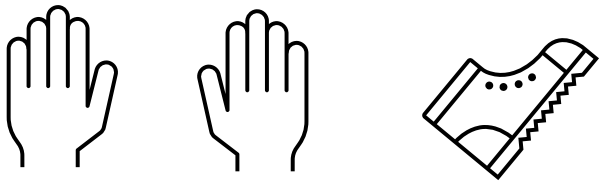
Who?

How much do you know about STEAM?

not much



something/enough



a lot

What is STEAM? Brainstorm it!

Word Cloud

Natural Phenomena

realistic

motivating

fun

inspiring

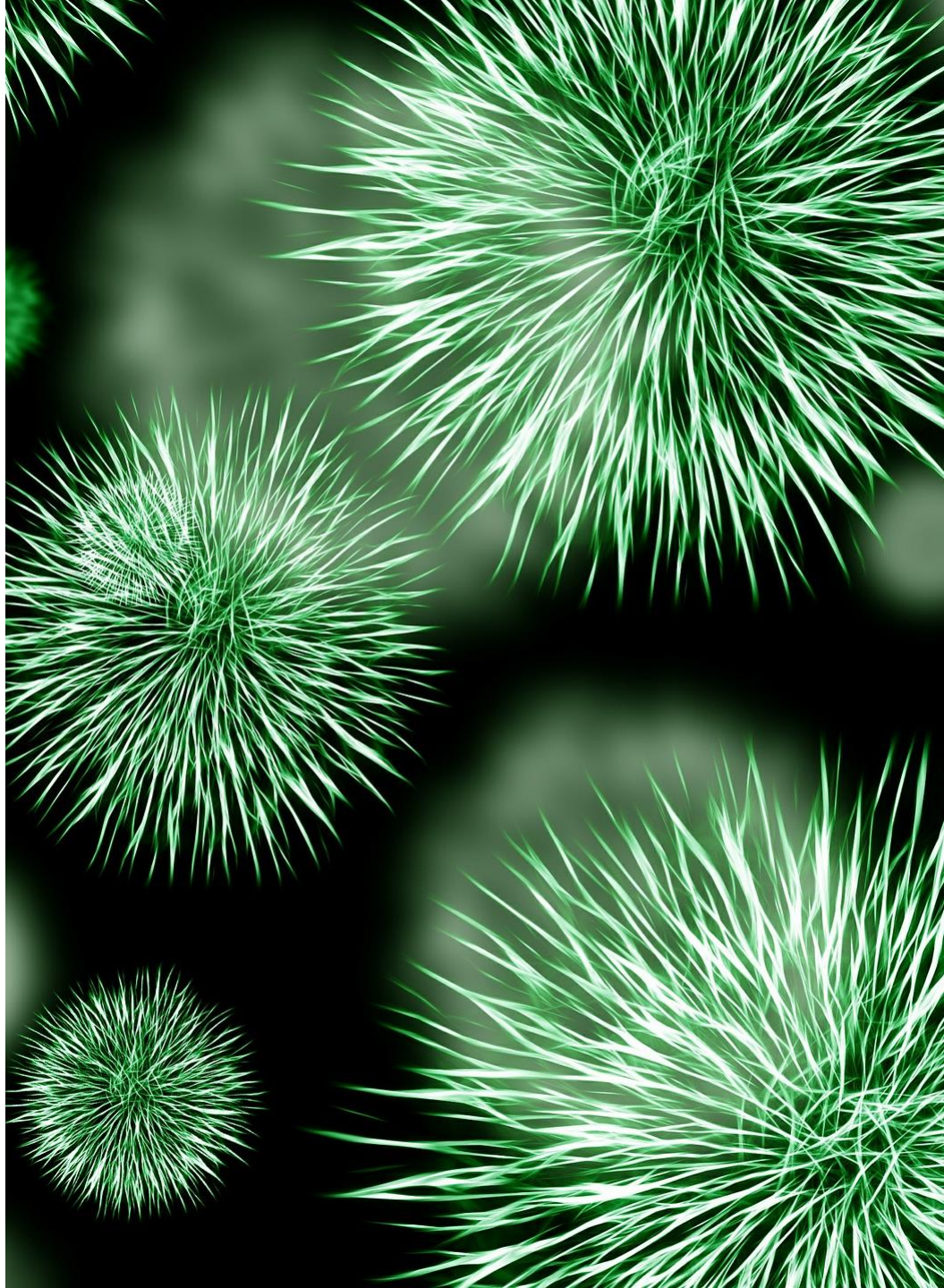
teasing

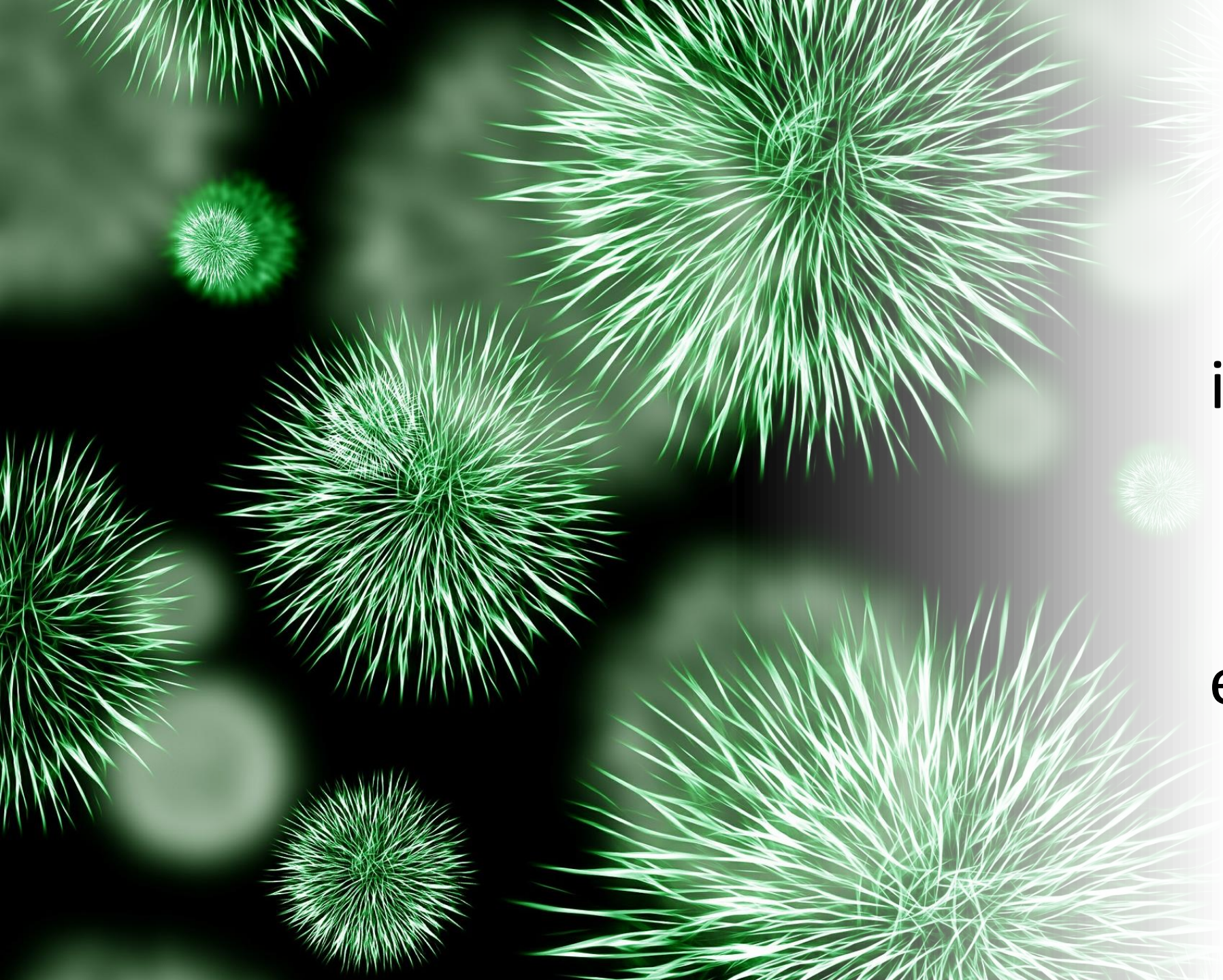
HOME / CROATIA / ITALY / TURKEY / HOLIDAY SCIENCE / ABOUT PROJECT / STUDENTS / TEA
STEM Influencers
eTwinning project 2021/2022

STEAM

Interdisciplinary:

- Science – observing, experimenting, making predictions, asking questions
- Technology – being inventive, using tools, making things work, identifying issues, using computers
- Engineering – solving problems, using materials, designing, creating, building
- Arts - creative thinking (out of the box), visual or performing arts, such as dance, design, painting, photography and writing
- Mathematics – pattering, sequencing, exploring shapes, numbers, volume and size



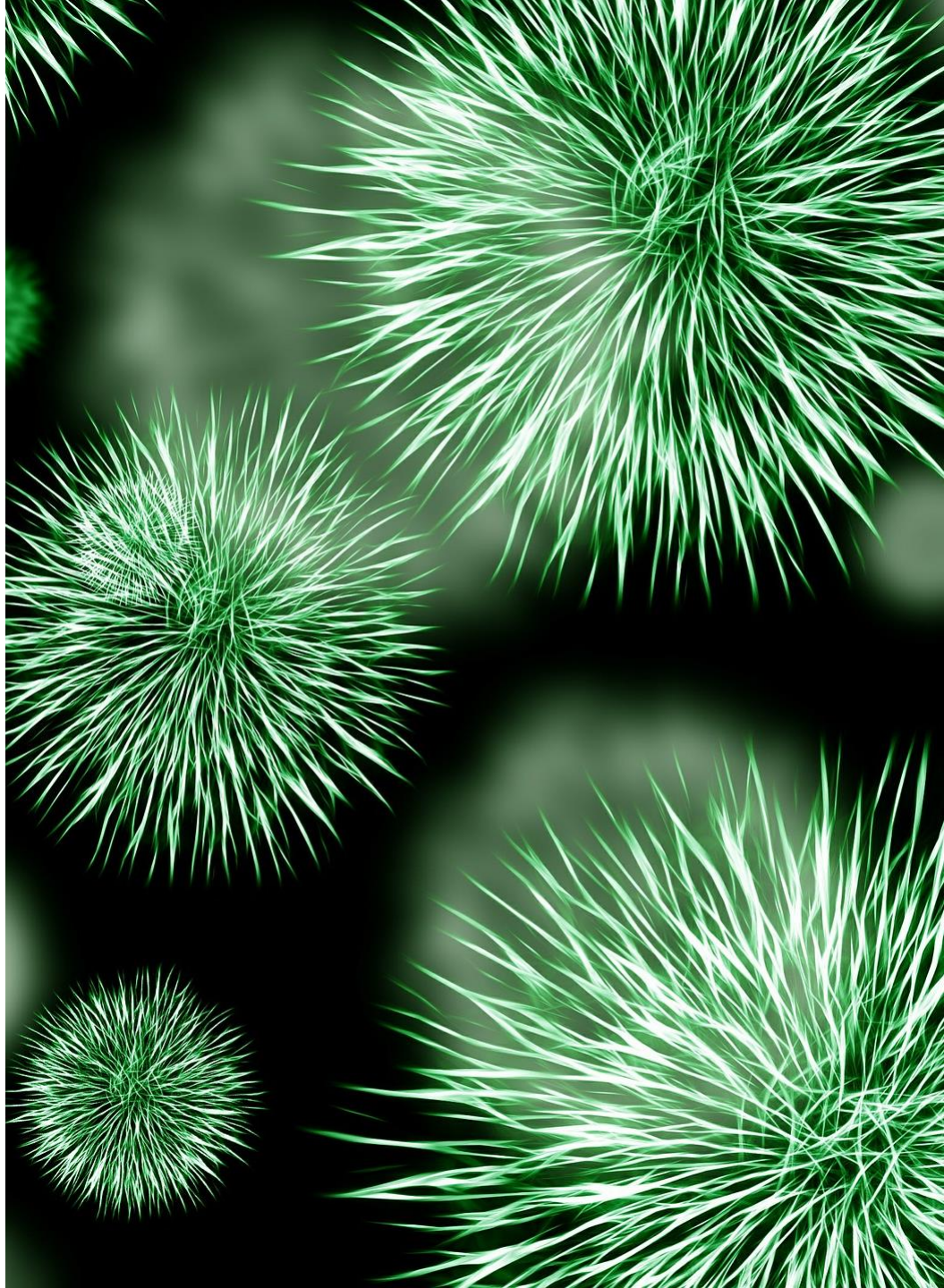


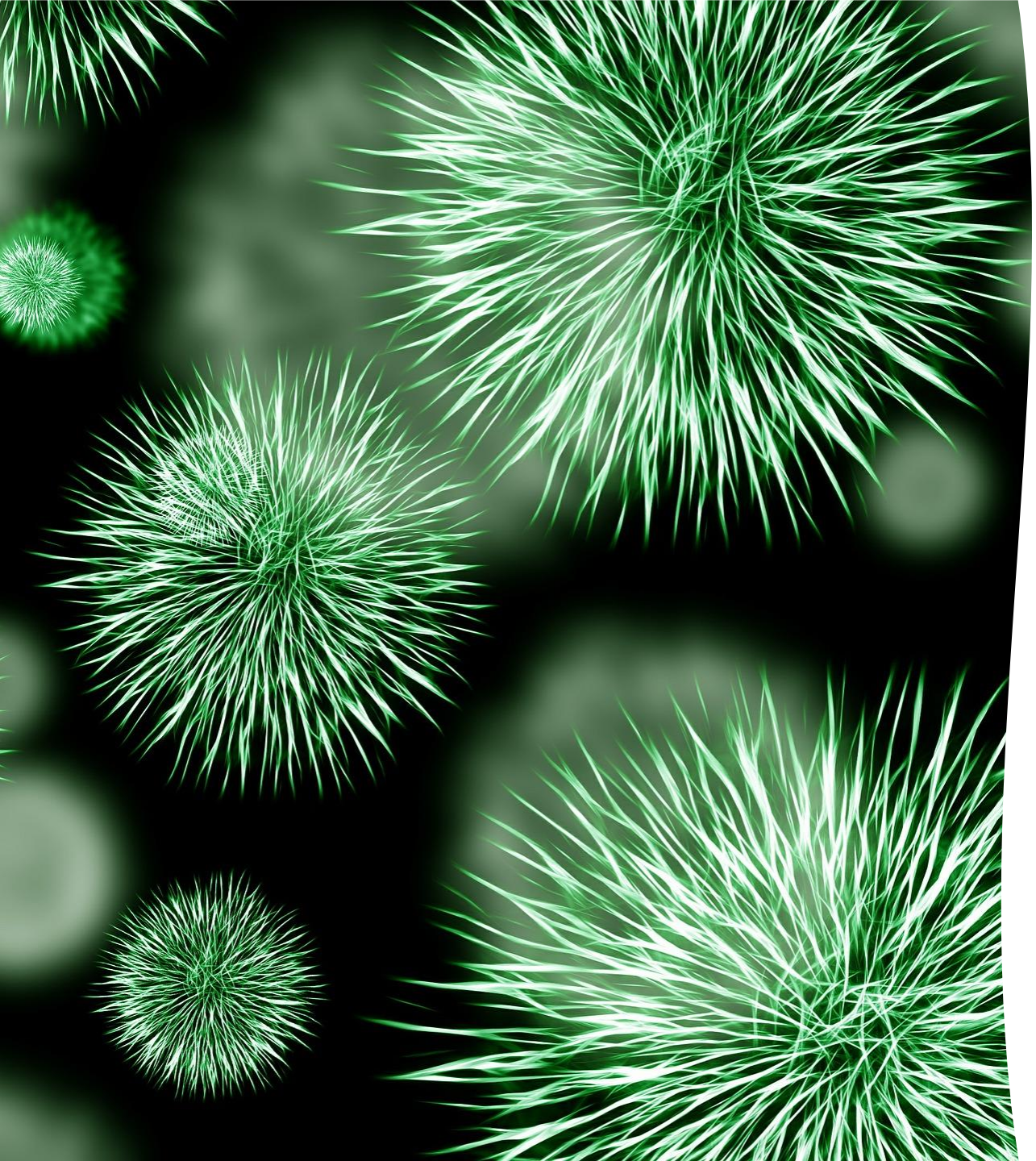
interconnection

equality & equity

Not knowing much about science?

observing	forming a hypothesis
asking questions, experimenting	analyzing
finding patterns	applying patterns (formulas)





Not knowing much about science?

- -s/-es in 3rd person singular
- past participle of a regular/irregular verb
- cry - cries
- future tenses…

HARD SKILLS

SOFT SKILLS

story telling

HARD SKILLS **SOFT SKILLS**

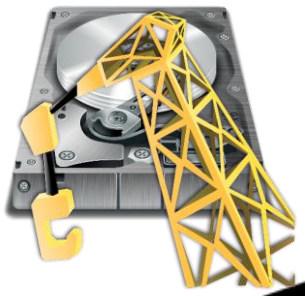
story telling

data skills

HARD SKILLS

SOFT SKILLS

technical skills



HARD SKILLS

SOFT SKILLS

story telling

technical skills

collaboration

HARD SKILLS **SOFT SKILLS**

data skills

story telling

collaboration

communication

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communication

curiosity

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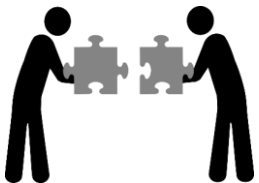


mathematics statistics knowledge

HARD SKILLS **SOFT SKILLS**

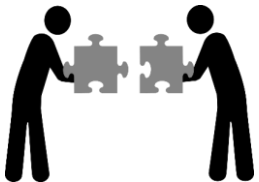
technical skills

data skills

story telling

communication

collaboration

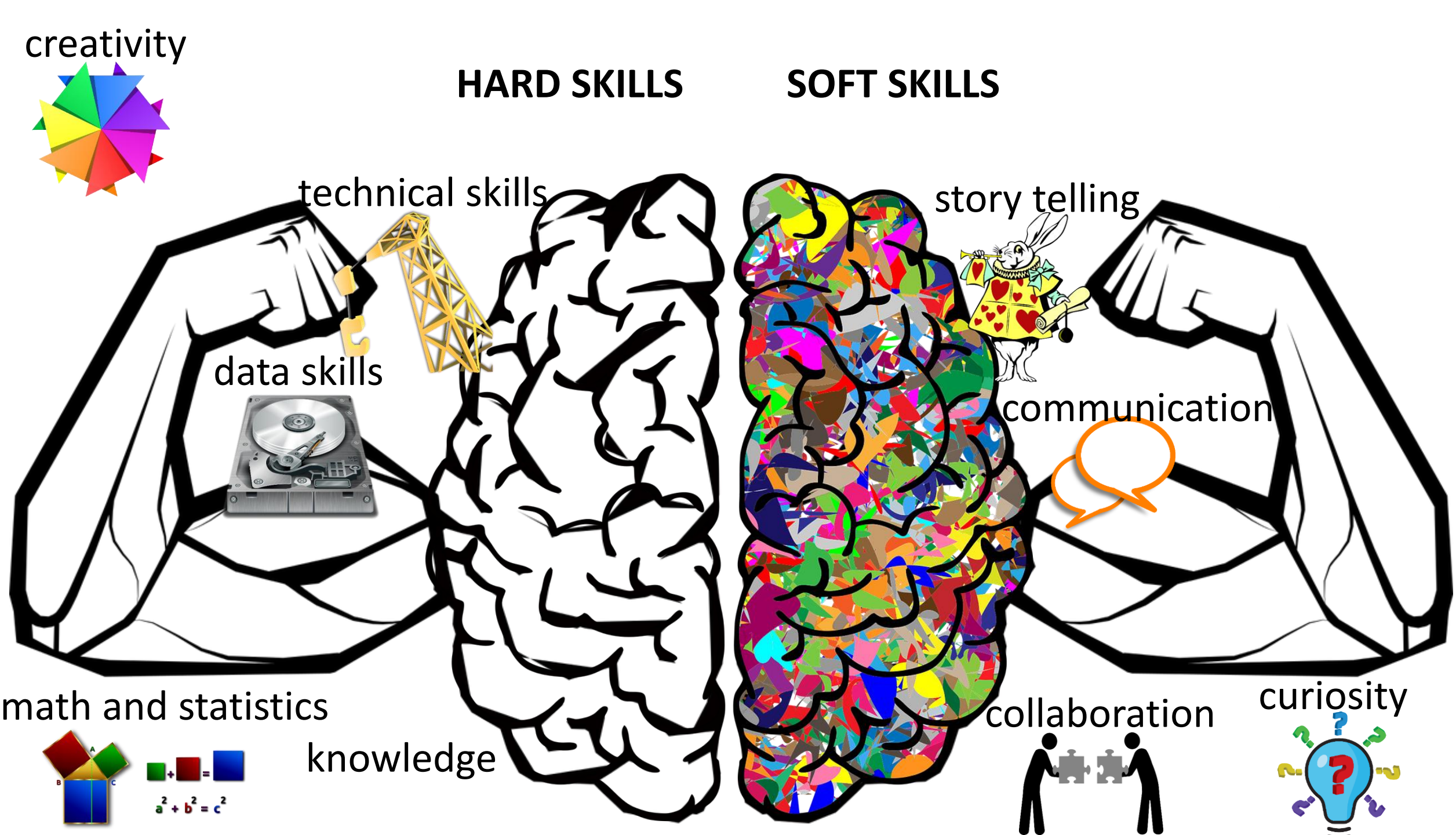


creativity

HARD SKILLS **SOFT SKILLS**

technical skills

data skills



story telling

communication

math and statistics

knowledge

collaboration

curiosity

creativity

problem solving

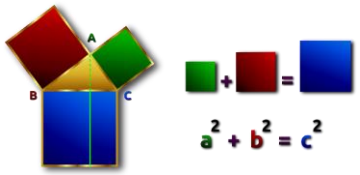
HARD SKILLS

SOFT SKILLS

technical skills

data skills

math and statistics

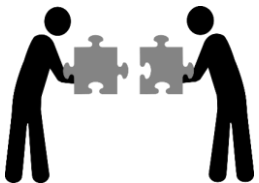


knowledge

story telling

communication

collaboration



curiosity

subject matter expertise

HARD SKILLS

SOFT SKILLS

problem solving

technical skills

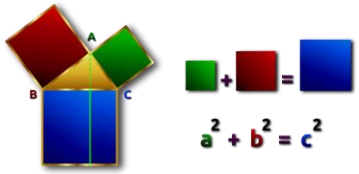
data skills

story telling

creativity

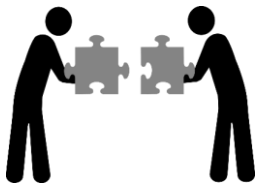
communication

math and statistics



knowledge

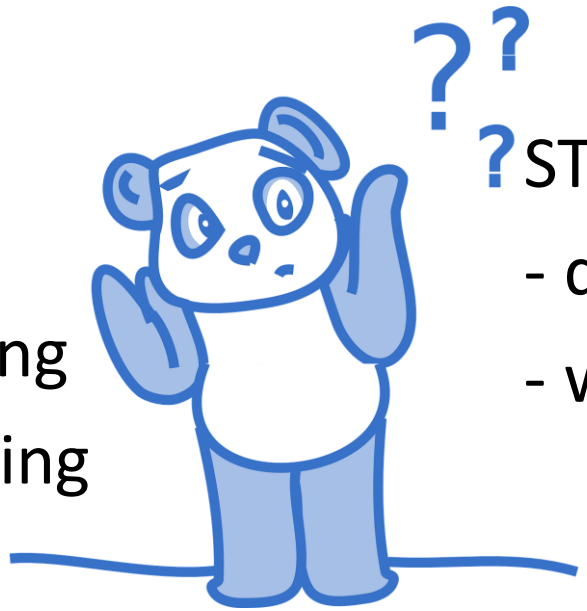
collaboration



curiosity

How can you foster these skills with STEM?

- collaboration
- creativity
- critical thinking
- problem solving



STEM problems

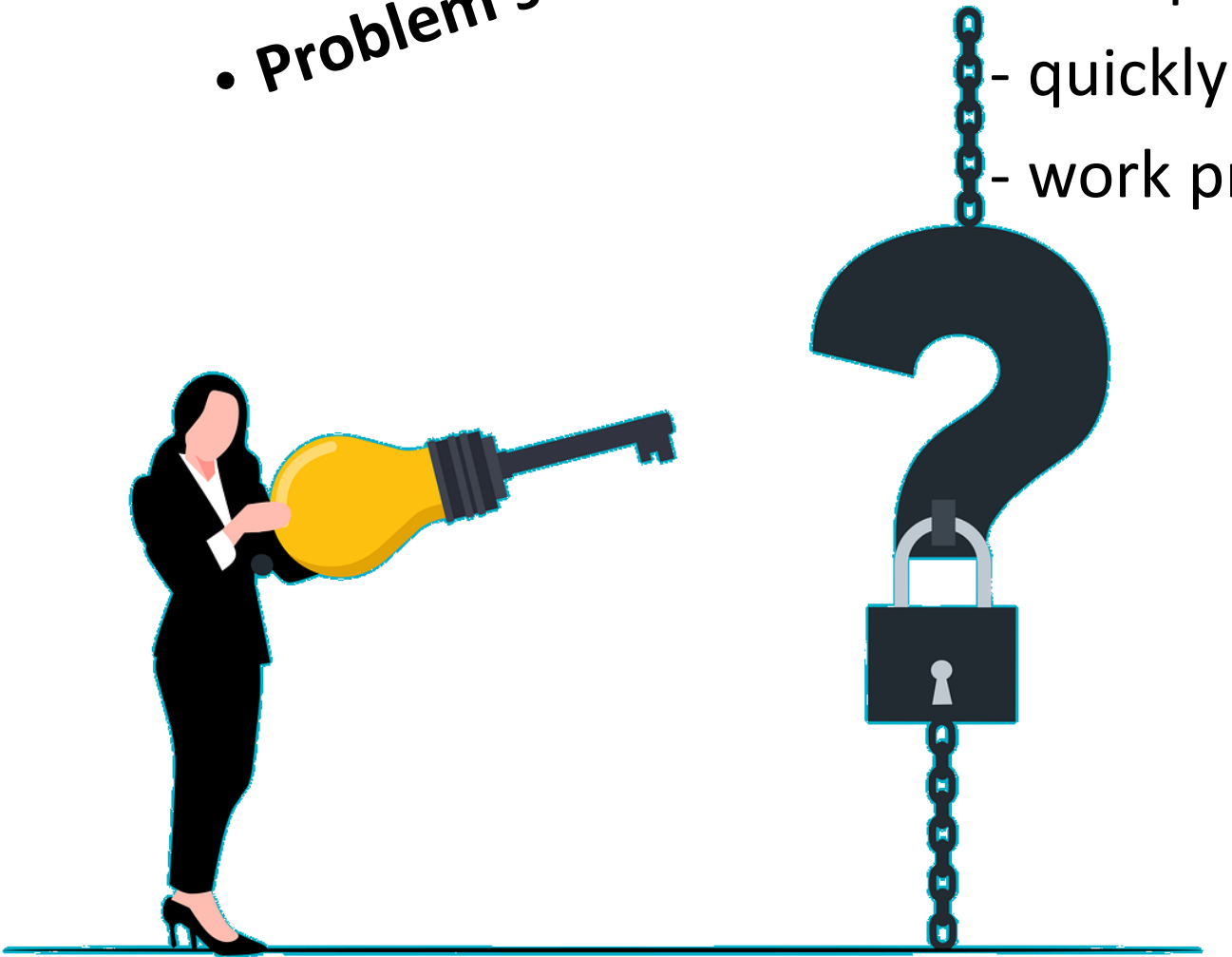
- quickly work (make sense of problems)
- work productively (real, appropriate solutions)

How can you foster these skills with STEM?

- **Problem solving**

STEM problems

- quickly work (make sense of problems)
- work productively (real, appropriate solutions)

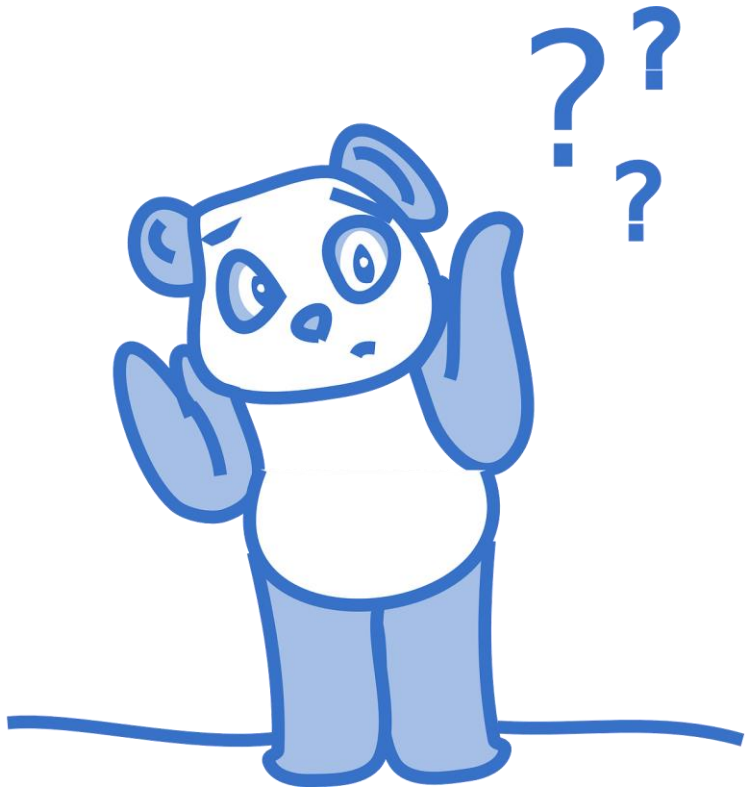


How can you foster these skills with STEM?

- collaboration
- creativity
- critical thinking
- problem solving

Effective STEM learning

- analyze
- evaluate
- reflect
- synthesize
- find solutions



How can you foster these skills with STEM?

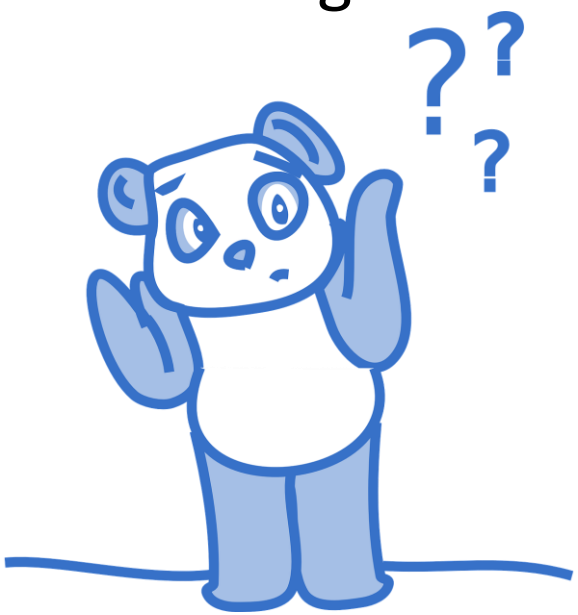
- **Critical thinking**

Effective STEM learning

- analyze,
- evaluate,
- reflect,
- synthesize,
- find solutions

How can you foster these skills with STEM?

- Collaboration
- Creativity
- Critical thinking
- Problem solving



STEM

- multiple approaches
- "out-of-the-box"
- mistakes
- failed attempts

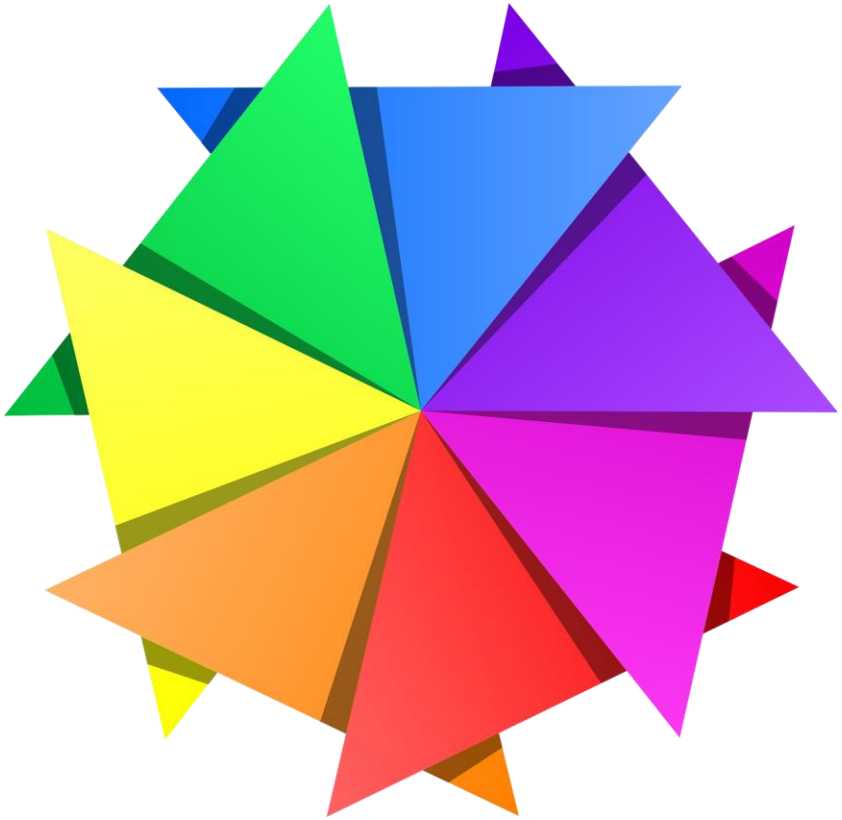
→ positive experiences

↓

deeper learning

How can you foster these skills with STEM?

- Creativity



STEM

- multiple approaches
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→ positive experiences

↓

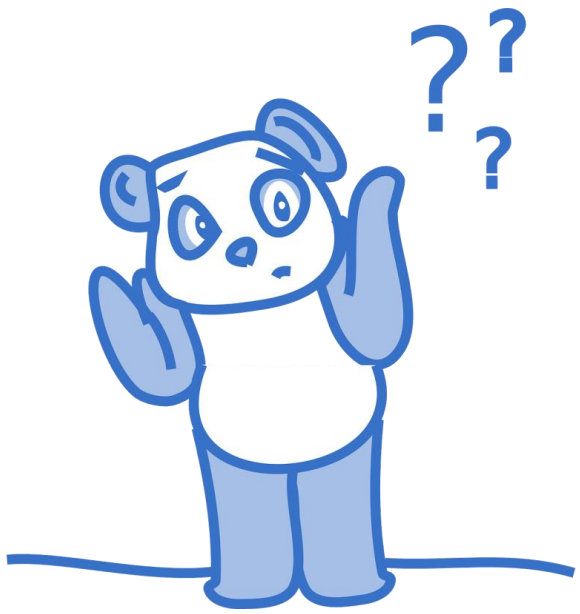
deeper learning

How can you foster these skills with STEM?

- Collaboration
- Creativity
- Critical thinking
- Problem solving

STEM problems

- work as a part of a team



How can you foster these skills with STEM?

- Collaboration

STEM problems

- work as a part of a team

STEAM for Success

- thinking tools
- 4cs
- career choices
- academic language boost
- well-being

- all ages
- all levels
- any ability
- any gender

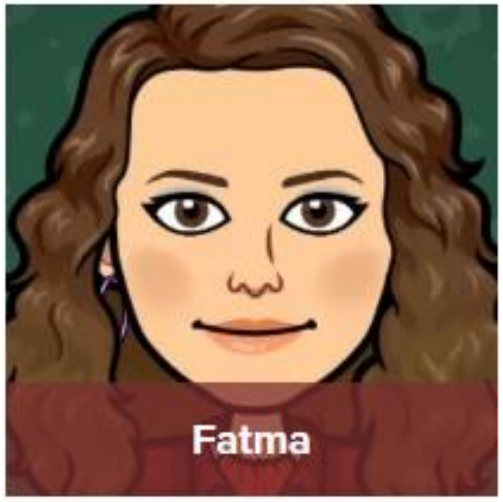
Meet the Influencers!

Lucija

Luka

Petra

Lara


Fatma

nuh

Erdem

Zeynep Esila

Career Choices

Bio-jacker

Bio-jackers are genetic engineers who undertake precision genome editing of plants and animals, including humans.

Depending on their specialist area of expertise, plant bio-jackers may manipulate the growth patterns and appearance of plants, along with the nutrition profiles of fruit and vegetables.

Human bio-jackers alter the genetic make- up of people, in order to fix gene patterns that cause disorders and illnesses, and in some instances to change their appearance and/or physical abilities. This is a tightly regulated area, and the work of bio-jackers must be thoroughly checked and certified for their potential impact to genetic diversity and the health of the host.

bio-jackers undertake complex genetic analyses to identify potential genetic modifications that can fix potential problems or meet other needs, and then undertake genome editing using plasmids to transfect the target cells.

bio-jackers will need in-depth knowledge of genetics, the processes of genetic engineering and genome editing, and what the results of these procedures are likely to be. Bio-jackers will work in teams and will need to be able to collaborate with others, such as genetic coaches and healthcare workers. They will also need training in advanced bioethics and genetic diversity practice.

Media remixer

With individuals having access to a plethora of media, a media remixer will combine a variety of media from across time to create blended one-of-a-kind products or experiences.

The remix will combine video, audio, images and augmented reality to create artefacts such as marketing campaigns, educational tools, wedding montages, entertainment and bespoke experiences such as installation art or travel adventures.

A media remixer's work will communicate their unique remix style and personal brand, and they will build a niche client base.

Media remixers will work in a freelance capacity working on a portfolio of projects for a range of clients at the same time.

A media remixer will be both an artist and a producer with a passion for creativity and, skills and expertise in digital media. They will also need to be entrepreneurial and have business development and sales skills. Many will have a secondary skill set and domain expertise that enables them to specialise in particular artefacts or experiences. A media remixer will need to invest in developing their personal brand and a profile to communicate their unique remix style, build reputation and grow their target market.

Terraforming microbiologist

With the recent successes in space travel, notions of inhabiting other planets, especially Mars, has become a reality rather than a dream.

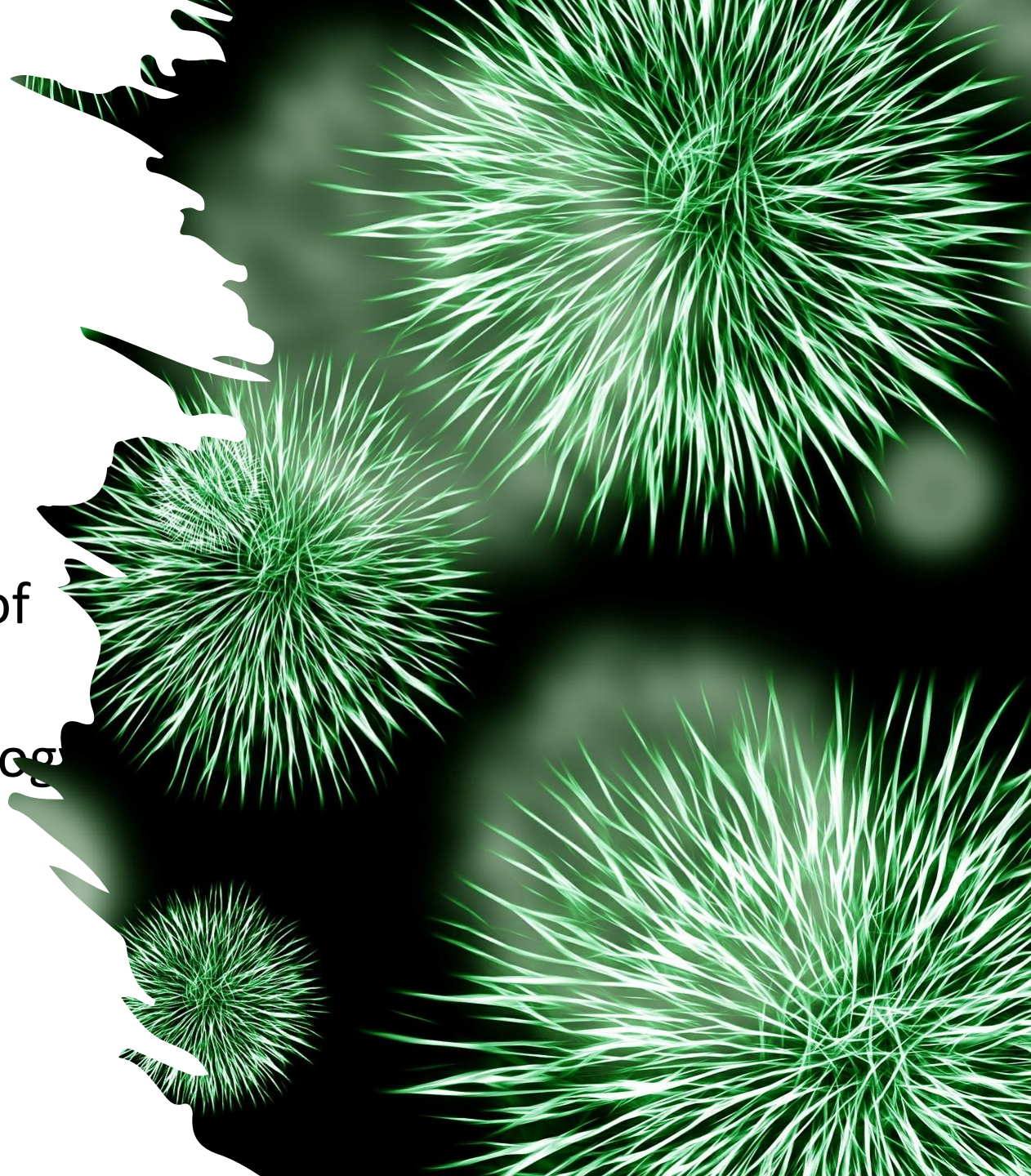
While it is possible to build space stations that have habitable spaces inside them, people can still not walk outside without a spacesuit. In the future, terraforming microbiologists will work as part of big terraforming teams to make Mars entirely habitable, and it is anticipated that this will be possible within a few decades.

Mars still presents significant challenges with the lack of a magnetic field and significant atmosphere, however terraforming microbiologists will be part of the solution. They will nurture microbes to make Mar's soil fertile and its atmosphere more breathable. NASA will fund much of this research.

Terraforming microbiologists will be skilled microbiologists with a keen interest in space programs. They will have high level communication skills as they work as part of a collaborative, where multiple scientists share research and engage in the big ideas around the specific problems.

STEM <3 Language

- integration of language and content learning
- naturalness of content for language instruction
- the position of English as the language of technology around the globe
- the lingua franca of science and technology today
- English – language for cool stuff
- both social and academic language
- receptive and productive skills



RECEPTIVE

- reading sources
- video sources
- team work
- language classes
- project interaction

PRODUCTIVE

- communicative – in teams, intercultural communication
- writing
- speaking
- making videos
- reading and leaving comments
- introducing
- making a picture dictionary with pronunciation
- making quizzes
- playing quizzes

Video resources

- Science for Kids
- https://www.ducksters.com/science/
- Science Journal for Kids
- https://sciencejournalforkids.org/#
- Cool Science Videos
- https://www.youtube.com/watch
- Fun Facts
- https://www.sciencekids.co.nz/sciencefacts/countries/unitedstates.html

S T E M

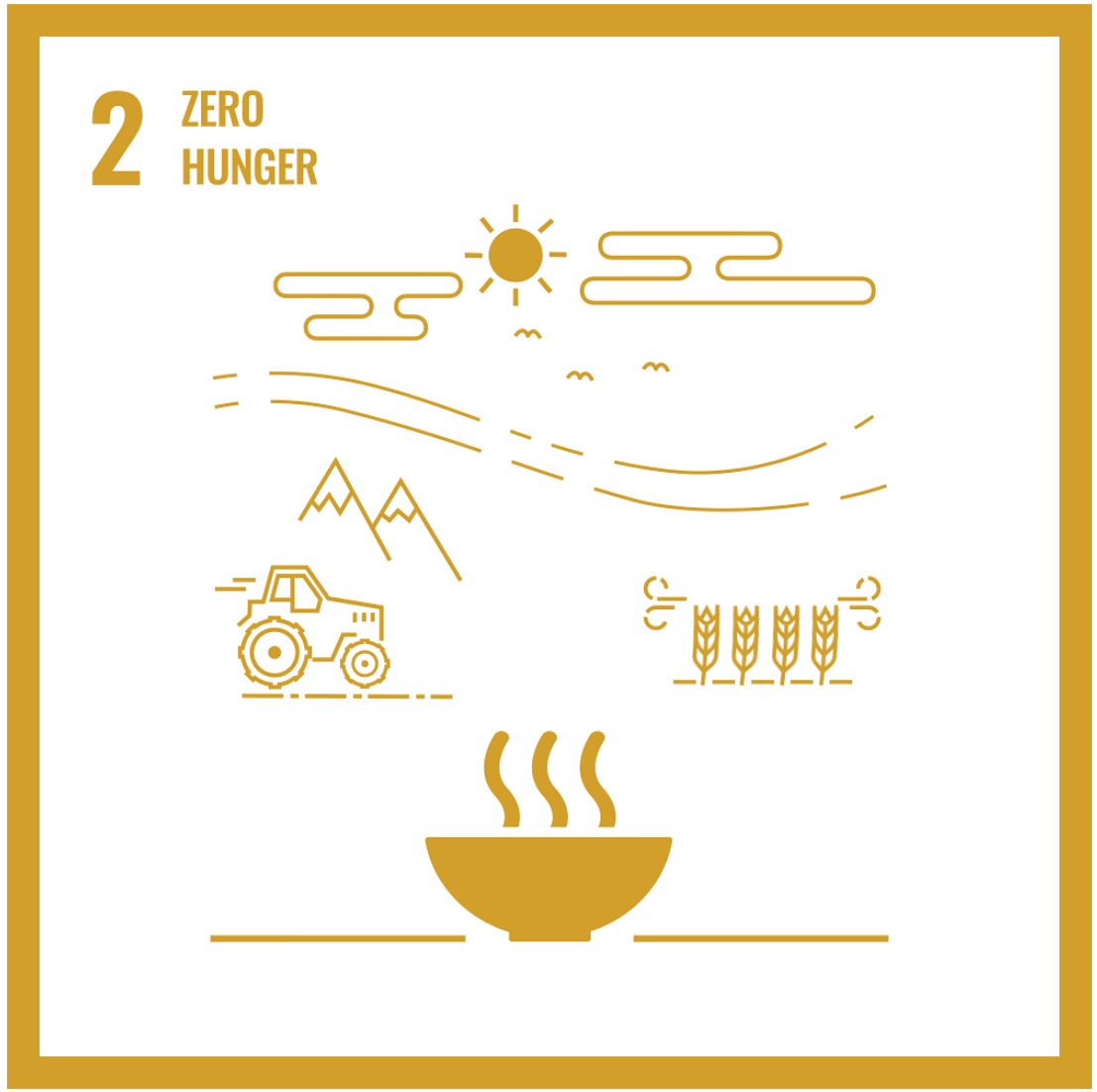
FOR SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT GOALS

Innovation and technology reflected through Sustainable Development Goals

- digitalization, big data, artificial intelligence, communication and collaboration (in medicine, mobility, urban design, energy)

STEAM:



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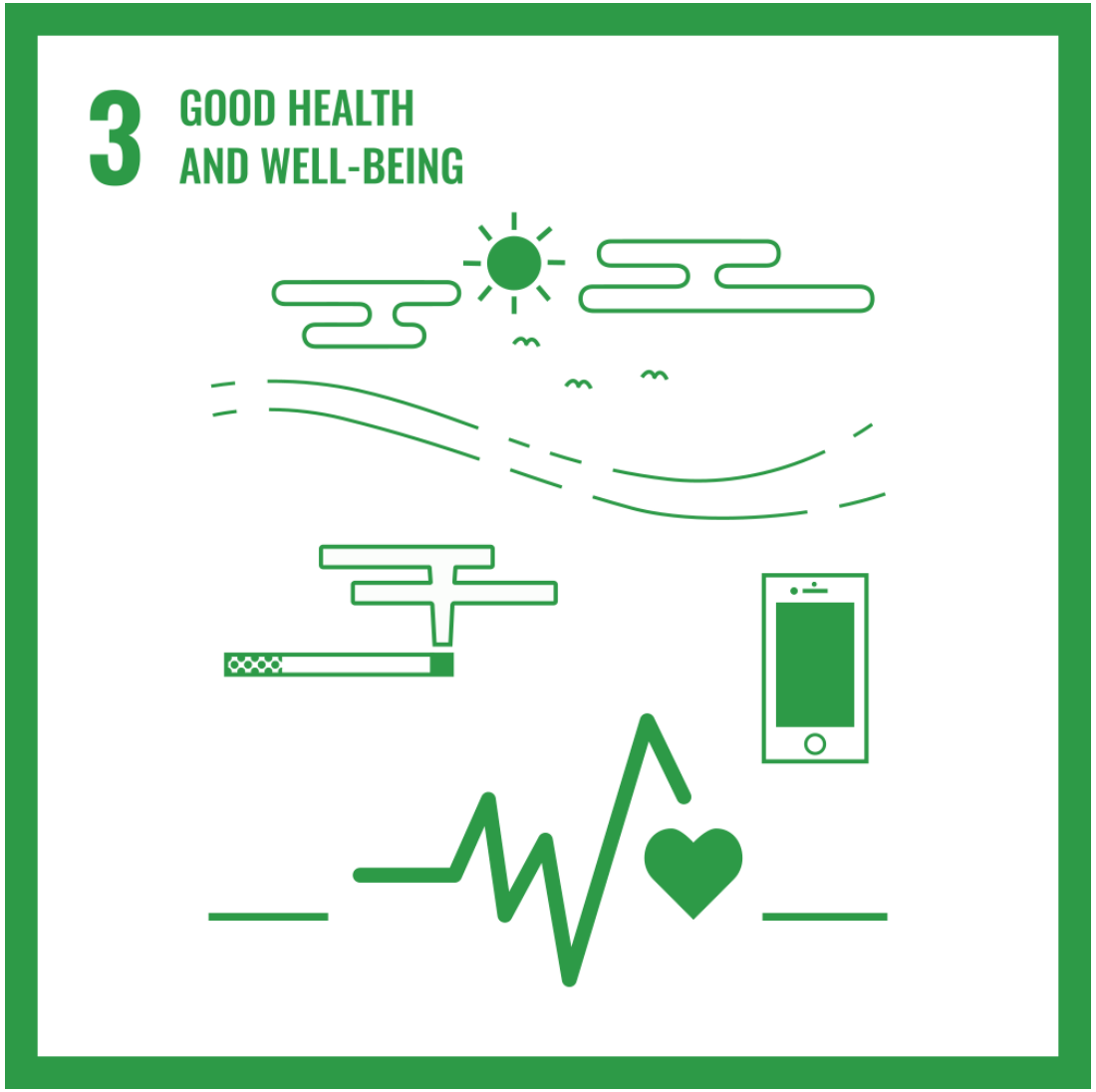

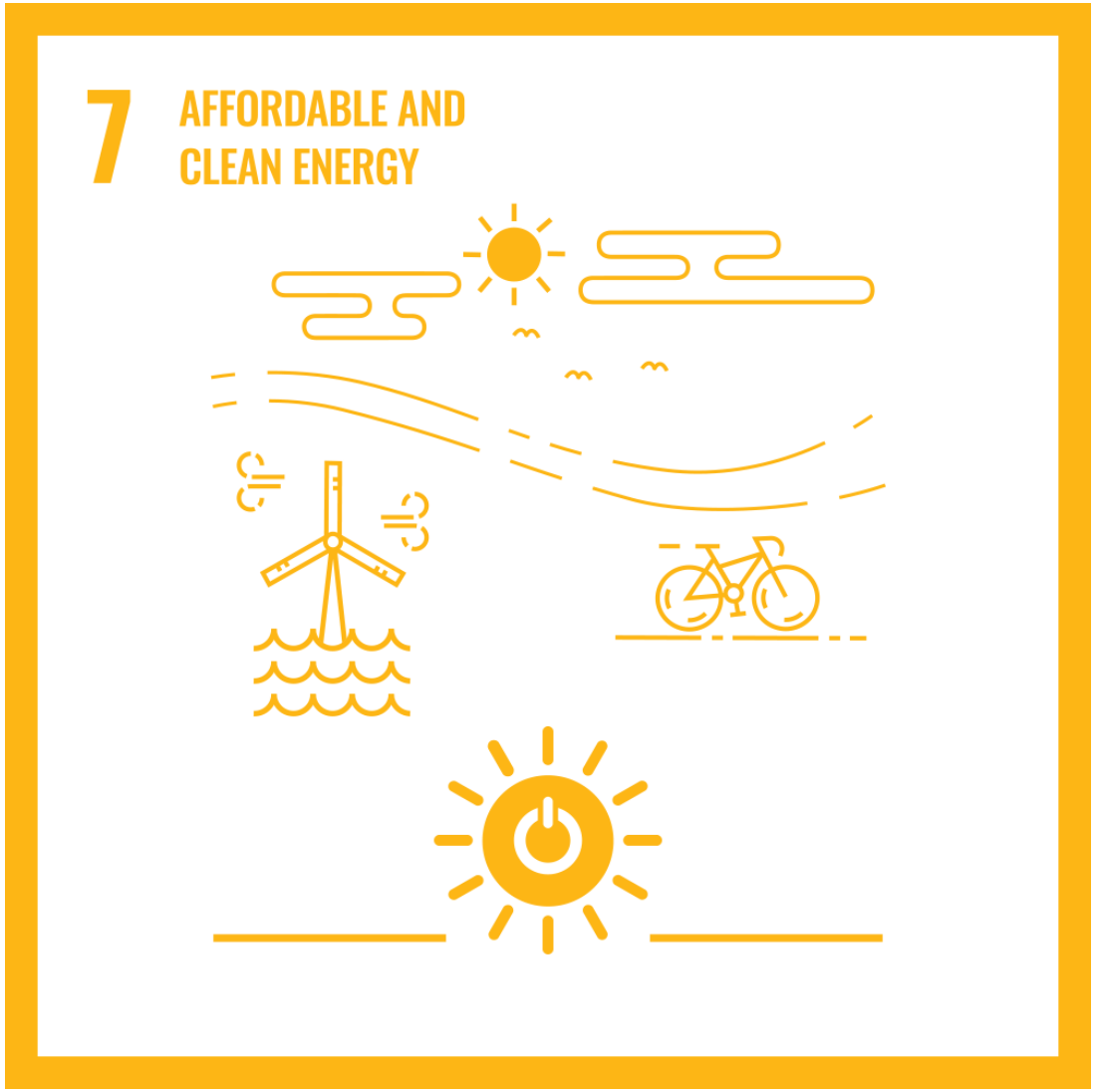

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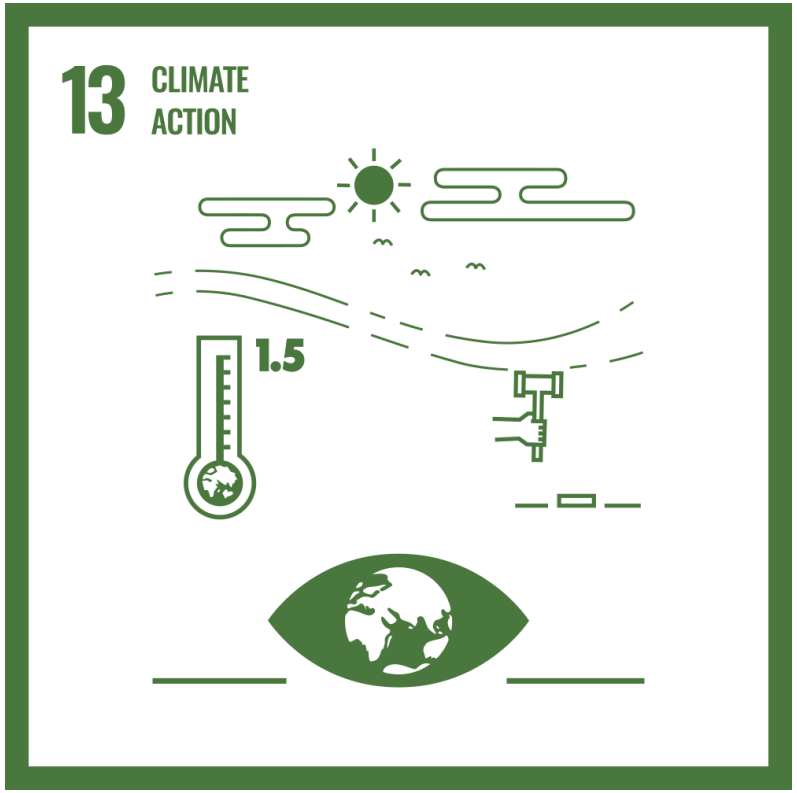

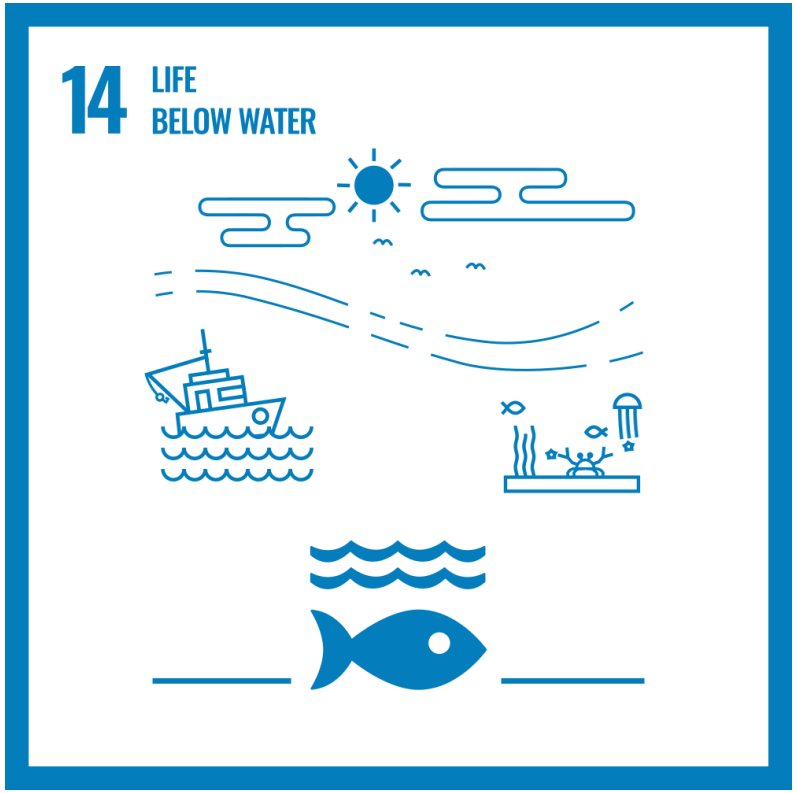

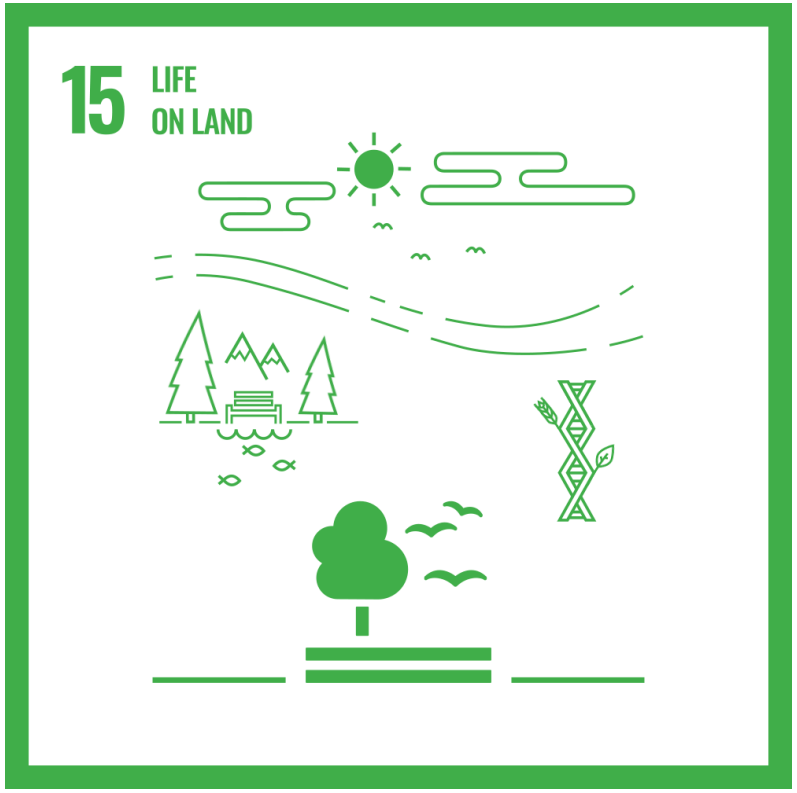

STEAM:

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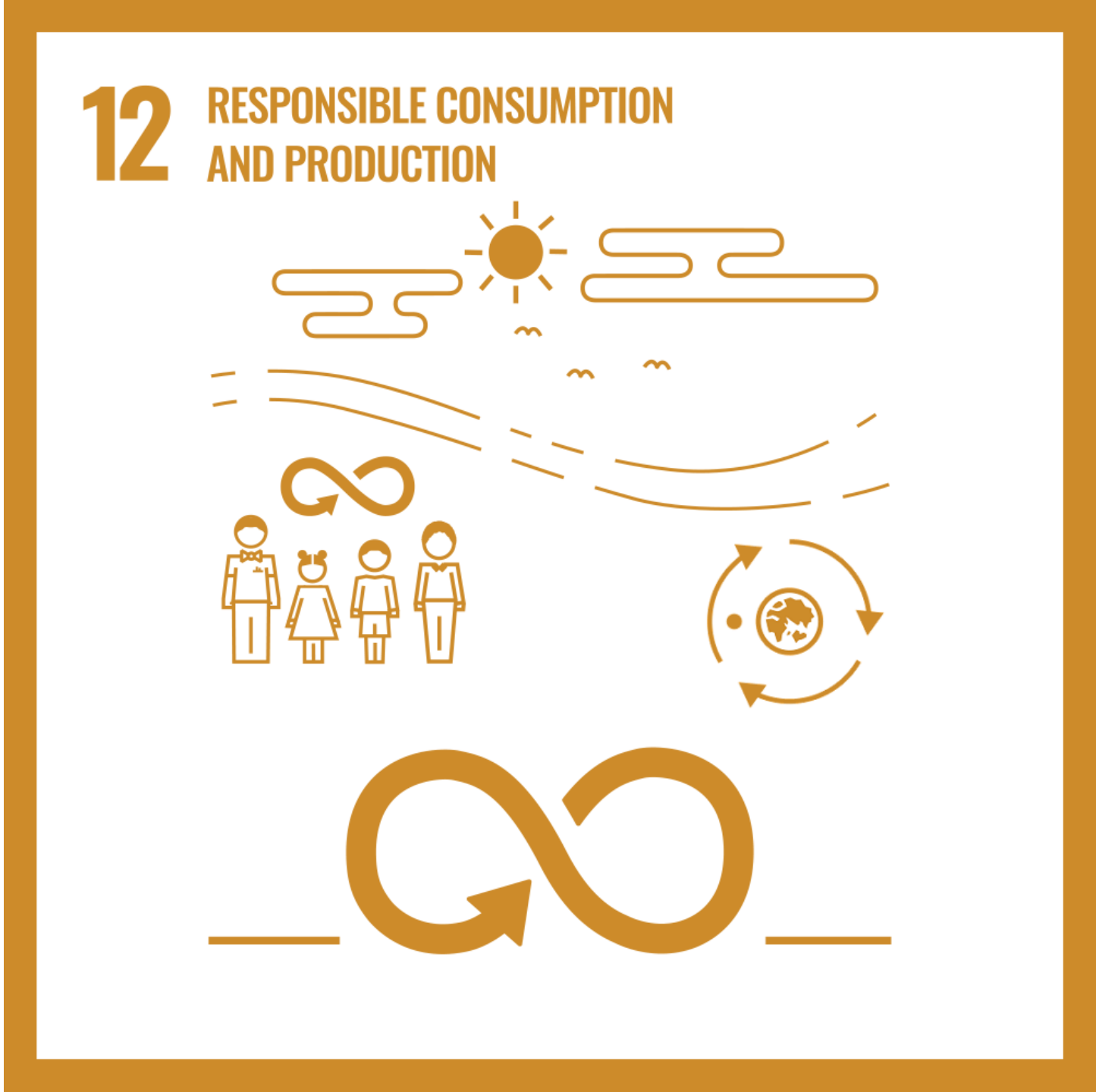

STEAM

What?

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Who?

Wonders of Our World

This project has many purposes. The most important purpose of all turned out to be fun both children and teachers are having in the magnificent process of creating, learning and teaching. While discovering and interpreting some of the wonders of our world, we learn a lot about ourselves, too.