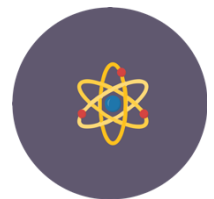
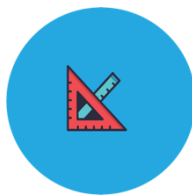


LEARNING SCIENCE THROUGH HUMORISTIC STORIES



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General information
Title of the activity
Learning Science Through Humoristic Stories
Subject
Biology, Mathematics, Physics, Chemistry, ICT, Arts (all STEM subjects applicable)
Keywords
Teamwork, transdisciplinarity, versatile, creativity, interactive
Connected to/ nested with
Can be easily connected to the Learning Science Through Theatre activity
Learning outcomes
<p>Teacher learning outcomes:</p> <p>Teachers will be able to:</p> <ul style="list-style-type: none"> ● explain scientific concepts in a creative and enjoyable way ● facilitate comprehension of scientific concepts ● promote attentive listening ● integrate humour into science teaching ● raise student awareness on societal issues concerning Science and Technology ● explore student beliefs on a scientific concept ● demonstrate the intersection between Science and Art ● reproduce educational material along with their students ● assess the level of understanding of a scientific concept by their students ● create an active educational community ● break from the daily grind
<p>Student learning outcomes:</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> ● deepen understanding of a scientific concept ● get familiarized with the History of Science in an amusing way ● apply comedy techniques (i.e., metaphor, contradictions) in science writing ● communicate clearly and confidently science topics in front of an audience ● articulate and justify answers, arguments and opinions ● offer constructive support and feedback to others ● produce educational material through fruitful collaboration ● demonstrate ability to recognize different forms of science comedy writing
Transversal skills (max 3 transversal skills)
Creativity, Communication Skills, Teamwork & Collaboration

Number of participants and target age group	
<ul style="list-style-type: none"> • $2 \leq \text{Student Audience} \leq 20$ (age: 10 -18) • $2 \leq \text{Teacher Audience} \leq 20$ 	
Duration	
5 hours	
Short activity description	
<p>In this team-taught, immersive science communication workshop, participants will build skills to passionately communicate in a way that excites and encourages audiences and school students to want to learn more about their favourite science topic. Participants will discover how to develop humoristic science-based stories that both engage and entertain their audience. By the end of the workshop, participants will be able to understand the science of laughter, gain insight into the joke mechanics, develop a science-related joke, and get familiarized with joke formulas and formats for writing humoristic science-based stories that will create a positive learning environment.</p>	
Preparation	
Materials	
<p>List of materials:</p> <ul style="list-style-type: none"> - For a Teacher Training Course <ul style="list-style-type: none"> • laptop • video projector • worksheets containing the activities • a suitable space for rehearsals - For a Classroom Course <ul style="list-style-type: none"> • laptop • video projector • whiteboard • worksheets containing the activities • a suitable space for rehearsals 	<p>Technical backline:</p> <ul style="list-style-type: none"> • At least one PC/laptop • Internet connection • Video projector
Announcement	
Announcement for teacher trainings:	
How to motivate and involve students in creative science activities through the integration of humour in science education.	
Announcement for students:	
Innovate, create and learn by developing humoristic stories on science topics.	
Hook	
How to use humour as an effective science teaching and learning strategy?	
Activity type/strategy	

Knowing / remembering	Lower order thinking		Higher order thinking		
	Comprehending / understanding	Applying	Analyzing	Synthesizing / evaluating	Creating
<ul style="list-style-type: none"> • Lecture • Video • Illustrations • Examples • Visuals 	<ul style="list-style-type: none"> • Questions • Discussion • Review • Exercises 	<ul style="list-style-type: none"> • Practice • Demonstrations • Presentations • Role play 	<ul style="list-style-type: none"> • Case Studies • Discussion • Questioning 	<ul style="list-style-type: none"> • Case studies • Constructing • Simulation 	<ul style="list-style-type: none"> • Simulations • Critiques • Design/development • Product generation • Producing

Delivery sequence	
Epidemiological suitability	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partly If changes should be made, please state them here: The activity could be executed with small groups of students physically present in a classroom (while wearing protective masks) or in a completely online environment/platform	
Is the activity suitable for execution in an online setting?	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partly Can the activity be sequenced? I. e. divided into smaller parts which could function as standalone parts which could maybe even be integrated into other activities.	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partly	
Step 1	
Step type/strategy:	Presentation & Interactive workshop Step duration (minutes): 50
Step title: (if applicable)	Humour in Science Education: A necessary introduction!
Keywords:	STEM education; humour theories; integration; transversal skills
Subaims: What teaching aims are you fulfilling with this part of the sequence?	To familiarise participants with the concepts and practices that are going to be demonstrated as well as the importance of integrating humour in the science education field towards fostering students' transversal skills, involvement and interest in STEM subjects.
Step by step description:	
The Need for Integrating Humour into Science Education ----- 5' Presentation of the needs for the integration of humour in science education with a focus on the transversal skills that students develop as well as the increase of their interest and participation in STEM subjects.	

Teaching and Stand-up Comedy: show me the link! ----- 10'

Outlining the similarities and links between the teaching practice and the performance of Stand-up comedians. Pointing out what can be integrated and used in the formal education's classroom environment.

What Makes Us Laugh? ----- 10'

A short overview of the most important scientific theories about humour that outlines what makes something funny.

Universal Joke Structure ----- 15'

Exploring some of the universal characteristics of humour by providing examples

ACTIVITY #1: Identify the basic elements of a science joke ----- 10'

This step focuses on the links between humour and science and on identifying the specific elements that constitute a science-related joke.

- **Notes:** A ppt presentation is necessary for this step as well as a video projector and one worksheet per group of participants containing Activity 1
- **Tips & tricks:** Although a ppt will be used, the presenter is advised to just use it as a supplementary visual support and try to explain the concepts as interactively as possible
- **Online environment adaptation:** the introductory presentation can be easily adopted to the online environment

Interpretation & analysis (for teachers)	Overview of the concepts related to humour and introduction to the key practices to be used		
Interpretation & analysis (for students)	Overview of the concepts related to humour and introduction to the key practices to be used		
Step 2			
Step type/strategy:	Presentation & Interactive Workshop	Step duration (minutes):	85
Step title: (if applicable)	The Science Joke		
Keywords:	Creativity; critical thinking; communication skills		
Subaims: What teaching aims are you fulfilling with this part of the sequence?	Creativity skills and imagination are fostered as well as interpersonal and communication skills		
Step by step description:			
Science Joke Mechanics ----- 20'			

An explanation of why and how the aforementioned elements work, with concrete examples, in relation to the universal joke structure and to the scientific inquiry process.

ACTIVITY #2: Complete the science joke! (Write-Perform-Reflect) ----- 20'

Interactive exercise during which the participants themselves complete a joke with a punch line that they come up, based on the science jokes mechanics and elements explained earlier.

Formulas to Integrate Humour into Science Education ----- 15'

Specific instructions with examples and guidelines on how to use and integrate jokes and humour, as previously demonstrated, in the classroom while teaching STEM subjects.

ACTIVITY #3: Science joke *ex nihilo* creation (Write-Perform-Reflect) ----- 30'

Interactive exercise during which participants create a short joke with a punchline related to a specific science topic from scratch

- **Notes:** A ppt presentation, a video projector and one worksheet/group of participants containing Activities 2 and 3 are necessary for this step.
- **Tips & tricks:** Focus on the key principles underlying the comedy tools; make improvements in order to make the joke work; ensure that the scientific concept is well-defined; facilitate the procedure by asking relevant questions that ignite the reflection process of the students
- **Online environment adaptation:** the presentation can be easily adopted to the online environment

Interpretation & analysis (for teachers)	<ul style="list-style-type: none"> ● Why did you find some science jokes funny and some not so funny? ● What improvements could be done, in order to make some not so funny jokes to work? ● Is the scientific concept well-defined? 		
Interpretation & analysis (for students)	<ul style="list-style-type: none"> ● Why did you find some science jokes funny and some not so funny? ● What improvements could be done, in order to make some not so funny jokes to work? ● Is the scientific concept well-defined? 		
Step 3			
Step type/strategy:	Presentation & Interactive Workshop	Step duration (minutes):	45
Step title: (if applicable)	Humoristic Science Storytelling		
Keywords:	Collaboration; communication skills; creativity		
Subaims: What teaching aims are you fulfilling with this			

part of the sequence?	Creativity skills and imagination are fostered as well as interpersonal and communication skills. Hands-on practice on the development of a storytelling narrative linked to science-related concepts		
Step by step description:			
Why Your Brain Loves Good Storytelling ----- 10' Presentation on how storytelling works and why it is efficient in the transmission of information, learning and teaching.			
Basic Elements for a Great Science Storytelling ----- 10' Presentation outlining the main links between science and storytelling; how to develop a narrative based on a scientific topic and its explanation.			
How to Evaluate and Decorate your Story! ----- 10' Presentation focusing on a decoration process of your science-related storytelling narrative in order to be amusing, informative and beneficial at the same time.			
Newton's First Law Storytelling Example ----- 15' Hands-on example of the development of a specific narrative based on Newton's law of Inertia; discussion on how these concepts and practices can be practically implemented in the science teaching process.			
<ul style="list-style-type: none"> ○ Notes: A ppt presentation is necessary for this step as well as a video projector ○ Tips & tricks: The five-part story structure determines <i>what</i> the basic components of a good story are; the evaluation-decoration process determines <i>how</i> to deliver your story successfully. ○ Online environment adaptation: the presentation can be easily adopted to the online environment 			
Interpretation & analysis (for teachers)	This is the step where the importance of integrating storytelling in the science teaching process in the classroom environment is outlined, along with practical tips and transferable examples of practices.		
Interpretation & analysis (for students)	Co-developing a narrative based on a scientific topic drawn from the official curriculum not only supports the learning process but also fosters additional transversal skills.		
Step 4			
Step type/strategy:	Interactive Workshop	Step duration (minutes):	45
Step title: (if applicable)	Create a Short Humoristic Science Storytelling		
Keywords:	Collaboration; communication skills; creativity		
Subaims: What teaching aims are you fulfilling with this	Participants develop a short storytelling narrative based on a previously selected science topic while integrating aspects of humour.		

part of the sequence?	
Connected to:	
Step by step description:	
<p>ACTIVITY #4: Create a Short Humorous Science Storytelling</p> <p>This is the facilitated interactive workshop during which participants are divided into groups. Each group works on the development of a long storytelling narrative based on a pre-selected scientific topic, preferably drawn from the official school curriculum. The story will integrate humour and the techniques presented during the previous steps in order to create effective jokes and punchlines.</p> <ul style="list-style-type: none"> ○ Notes: A worksheet containing Activity #4 is necessary for this step. ○ Tips & tricks: For the same science-related topic the permutations are endless; find a story you're already passionate about; define the end; identify the most important aspects of that story; write out your story, skipping a line after every sentence; the "You" and the "Need" part of the five-part story structure are the most important parts of any story; the "Change" part is what makes it a good story; the more you implement the evaluation-decoration process in your story, the funnier your story will be. ○ Online environment adaptation: the interactive workshop can be easily adopted to the online environment 	
Interpretation & analysis (for teachers)	Participants perform and foster their confidence, communication and interpersonal skills.
Interpretation & analysis (for students)	Students perform and foster their confidence, communication and interpersonal skills.
Step 5	
Step type/strategy:	Performance & Discussion
	Step duration (minutes): 75
Step title: (if applicable)	Performance & Reflection
Keywords:	Reflection, transversal skills, collaboration, presentation & communication skills
Subaims: What teaching aims are you fulfilling with this part of the sequence?	The aim is to proceed to present the narrative that was developed and proceed with a facilitated self-reflection exercise where the group will analyse what they learned in terms of scientific content but also what transversal skills they gained during the implementation of the activity
Step by step description:	
Performing ----- 30'	

Each group of participants performs the story that they developed in front of the whole group. It fosters their confidence, communication and interpersonal skills.

Reflecting ----- 45'

Participants reflect on the performance in relation to the theme and their project. Most importantly participant's reflection, as initiated by the tutors, is focused on the process of the activity and how this process and approach to educational and learning practices can be relevant for fostering 21st century transversal skills in the framework of science education.

- **Notes:** The teacher is facilitating the procedure; also, the use of a written, short and easy to fill questionnaire is advised in order to benchmark students' perceptions.
- **Tips & Tricks:** The teacher is facilitating the procedure by asking relevant questions that ignite the reflection process of the students
- **Online environment adaptation:** the performance and discussion step can be easily adopted to the online environment

Interpretation & analysis (for teachers)	Participants perform and foster their confidence, communication and interpersonal skills. Reflection plays an important role in order to identify if and how the activity met its aims and how the students perceived it.
Interpretation & analysis (for students)	Students perform and foster their confidence communication and interpersonal skills Reflection is the final step towards internalising the learning experience and identifies the skills acquired.

Wrap up & sequence interpretation	
Sequence interpretation & analysis (for teacher trainings)	Each step could be allocated to each day during a 5-day training and could also be condensed for a 3-day workshop
Sequence interpretation & analysis (for the activity/sequence when held in classroom)	The proposed duration of the activity in the classroom is 5 teaching hours, at least once per week, preferably during the related STEM subject
Evaluation/assessment	
The assessment takes place during the reflection step via group discussion. A questionnaire is also advised to be used.	