Toolkit 3

Mimesis Activities for linking Science & Performing Arts

3.2 Create a pedagogical sequence Merging several Mimesis Activities

General Hints for Creating a Sequence Mixing Mimesis Activities

To create a pedagogical sequence for the science classroom using multiple activities from Mimesis and adapt them to science topics, follow these steps:

1. SELECT THE SCIENCE TOPICS

Identify the specific science topics from the curriculum that you want to incorporate into the pedagogical sequence. Determine the learning objectives associated with these topics. The content should come from the curriculum, from your pedagogical vision and aims. The Mimesis activities have been constructed as methodological components and will always rely on the teachers' knowledge and approach.

2. UNDERSTAND THE MIMESIS ACTIVITIES AND THEATRE TECHNIQUES USED

Familiarize yourself with the Mimesis activities, including their objectives, content, and learning outcomes. Understand the specific theatre techniques used in each activity. This will help you identify how these techniques can be adapted to teach the selected science topics effectively.

3. PLAN THE SEQUENCE

Break down each Mimesis activity into smaller steps or stages, considering the logical progression of concepts and skills. Select a whole activity or mix several Mimesis proposals to create a sequence tailored to your needs! Ensure that each step builds upon the previous one and aligns with the learning objectives of the selected science topics. Arrange the activities in a coherent sequence that flows smoothly from one to another.

4. DESIGN LEARNING EXPERIENCES & MATERIALS

Develop engaging and interactive learning experiences for each activity that incorporate both the theatre techniques and the selected science topics. Gather the necessary resources, materials, and tools needed for each activity within the sequence. This may include scripts, props, scientific equipment, or multimedia resources. Ensure they are accessible and appropriate for your students.

5. ASSESS LEARNING

Determine how you will assess students' understanding and progress. Design assessments that evaluate their comprehension of the selected science topics and their ability to apply theatre techniques effectively in their learning. Use feedback from these assessments to adjust your instruction accordingly. Or integrate Mimesis sequences in regular assessment practices you have built!

6. IMPLEMENT AND REFLECT

Facilitate the pedagogical sequence, guiding students through each activity and providing support as needed. Encourage them to reflect on their learning experiences and make connections between the theatre techniques and the selected science topics. Reflect on the effectiveness of the sequence and make adjustments for future iterations.

Scenario 1: Exploring the Solar System

Science Topic: Solar System and Planets
Mimesis Activities: A Matter of Scale, Point-Line-Shape-Puppet

Introduction.
Begin by introducing the solar system and the planets to the students. Use visual aids, such as posters or a slideshow, to provide an overview of the planets and their characteristics.

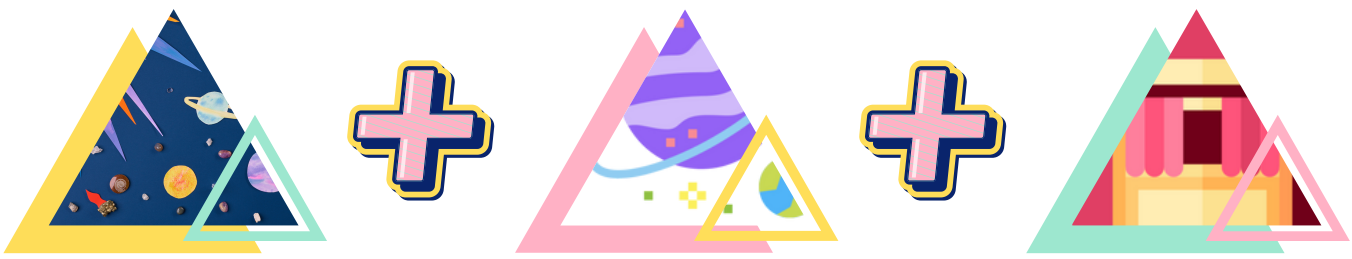
Conduct the "A Matter of Scale" activity.
Guide the students through the hands-on exploration of the solar system's vastness. Encourage them to observe and interact with the different elements to develop a sense of order and organization. Emphasize the interconnectedness of celestial bodies and the concept of scale.

Transition to the "Point-Line-Shape-Puppet" activity.
Explain to the students that they will be using physical and puppet theatre techniques to explore and understand the geometric shapes and patterns found in the solar system. Assign each student or group a planet to focus on.
Instruct the students to create their puppets representing their assigned planet. They can use various materials, such as paper, cardboard, and craft supplies, to craft their puppets. Encourage them to be creative and think about how they can express the unique features of their planet through their puppet design.

Scriptwriting.
Once the puppets are ready, guide the students through the scriptwriting process. Ask them to create a short script that incorporates their planet's characteristics, such as size, composition, and any interesting facts. Encourage them to think about how they can use physical expression and narrative expression to bring their puppet and planet to life.

Practice.
Give the students time to practice and refine their puppet performances. They can work in groups or individually, depending on the size of the class and the number of planets being represented.

Performance.
Finally, organize a puppet show where each student or group presents their puppet and performs their script. Provide opportunities for the students to ask questions and share their observations about the different planets.



Scenario 2: Investigating Ecosystems

Science Topic: Ecosystems and Interactions
Mimesis Activities: The Secret Life of Plankton, Water Water Everywhere

Introduction.
Introduce the concept of ecosystems to the students, explaining how different organisms interact with each other and their environment. Use examples and visuals to illustrate the concepts of food chains, habitats, and biodiversity.

Begin with "The Secret Life of Plankton" activity.
Guide the students through the interactive storyline, immersing them in the underwater world and the wonders of marine life. Encourage them to ask questions, make observations, and engage with the material throughout the activity.

Transition to the "Water Water Everywhere" activity.
Explain to the students that they will be exploring the water cycle and the dynamic nature of water through theatrical games and experiential learning.

Improvisation in groups.
Divide the class into small groups and assign each group a specific aspect of the water cycle to focus on, such as evaporation, condensation, precipitation, or runoff. Instruct the groups to brainstorm and create short improvised skits that demonstrate their assigned aspect of the water cycle using physical expression and acting.

Practice.
Give the groups time to prepare and practice their skits. Encourage them to think about how they can effectively communicate the scientific concepts related to their assigned aspect of the water cycle through their performances.

Performance.
Facilitate a mini-performance session where each group presents their skit to the class. After each performance, engage the students in a discussion about the scientific concepts portrayed in the skit and their relevance to the water cycle.

Reflect.
Facilitate a mini-performance session where each group presents their skit to the class. After each performance, engage the students in a discussion about the scientific concepts portrayed in the skit and their relevance to the water cycle.

Scenario 3: Exploring Energy Transformations

Science Topic: Energy Transformations
Mimesis Activities: World On Fire, STEAM Your Body

Introduction.
Introduce the concept of energy transformations to the students, explaining how energy can change from one form to another. Use examples, such as the conversion of electrical energy to light energy in a light bulb or the transformation of chemical energy to thermal energy in a chemical reaction.

Begin with the "World On Fire" activity.
Guide the students through the group game where they tackle challenging questions related to energy transformations and real-world issues. Some examples include: Climate change and its impact on renewable energy sources; The transition from fossil fuels to clean energy alternatives; Energy consumption and its effects on the environment. Encourage them to think creatively and come up with innovative solutions to these problems.

Transition to the "STEAM Your Body" activity.
Explain to the students that they will be using physical movement, creativity, and collaboration to explore symmetry and geometry in the context of energy transformations.

Work in groups.
Divide the class into small groups and assign each group a specific type of energy transformation to focus on, such as electrical to mechanical, thermal to sound, or light to chemical. Instruct the groups to create a short choreography that represents their assigned energy transformation. Encourage them to think about how they can use movement and dance to convey the transformation process.

Practice.
Give the groups time to practice and refine their choreographies. They can experiment with different movements, formations, and music choices to enhance the visual and symbolic representation of energy transformation.

Performance.
Organize a dance showcase where each group performs their choreography. After each performance, facilitate a discussion about the energy transformation portrayed and its relevance to everyday life. Encourage the students to reflect on how they can apply the knowledge acquired to make informed decisions about energy use and conservation.

Scenario 4: Investigating Forces and Motion

Science Topic: Forces and Motion
Mimesis Activities: Famous Kamishibaï, Science Storytellers

Introduction.
Introduce the concept of forces and motion to the students, explaining how forces can cause objects to move or change their motion. Use examples, such as the force of gravity pulling objects towards the Earth or the force of friction slowing down a moving object.

Begin with the "Famous Kamishibaï" activity.
Guide the students through the process of creating their own Kamishibaï stories that explore the lives of famous scientists and their contributions to the understanding of forces and motion (i.e. Albert Einstein, Isaac Newton, Galileo ...). Encourage them to use illustrations and storytelling techniques to engage their audience.

Transition to the "Science Storytellers" activity.
Explain to the students that they will be using their creativity and scientific knowledge to improvise short stories that reinforce the concepts of forces and motion.

Work in groups.
Divide the class into small groups and assign each group a specific force or motion concept to focus on, such as gravity, friction, or acceleration. Instruct the groups to draw cards representing different elements for their stories, such as scientific concepts, settings, characters, and instructions for improvisation.

Practice.
Give the groups time to collaborate and create their improvised stories. Encourage them to incorporate scientific accuracy and clear communication into their narratives.

Storytelling.
Organize a storytelling session where each group presents their improvised stories to the rest of the class. After each presentation, facilitate a discussion about the forces and motion concepts portrayed and their real-life applications. Conclude the lesson by emphasizing the importance of understanding forces and motion in various contexts, such as daily life, sports, and engineering. Encourage the students to reflect on how they can observe and analyze forces and motion in their surroundings.

Scenario 5: Exploring the Human Body

Science Topic: Human Body Systems
Mimesis Activities: STEAM Your Body, Point-Line-Shape-Puppet

Introduction.
Introduce the different systems of the human body to the students, such as the circulatory, respiratory, and digestive systems. Explain how these systems work together to maintain homeostasis and support overall health and well-being.

Begin with the "STEAM Your Body" activity.
Guide the students through a series of movement-based activities that focus on symmetry and geometry. Relate these activities to the structure and organization of the human body systems.

Transition to the "Point-Line-Shape-Puppet" activity.
Explain to the students that they will be using puppet theatre techniques and physical expression to explore the different body systems and their functions.

Work in groups.
Divide the class into small groups and assign each group a specific body system to focus on, such as the skeletal, muscular, or nervous system. Instruct the groups to create puppets or representations of their assigned body system using various materials, such as paper, fabric, or craft supplies.

Craft.
Give the groups time to craft their puppets and develop short scripts or narratives that highlight the functions and interactions of their assigned body system. Encourage them to think about how they can use physical expression and puppetry techniques to convey the complexity and interconnectedness of the human body.

Performance.
Organize a puppet show where each group presents their puppet and performs their script. After each performance, facilitate a discussion about the specific body system portrayed and its role in maintaining overall health.

Reflect.
Conclude the lesson by emphasizing the importance of understanding the human body systems and how they contribute to individual well-being. Encourage the students to reflect on how they can take care of their bodies and make healthy choices.

Scenario 6: Exploring Electricity in Everyday Life

Science Topic: Electricity and circuits
Mimesis Activities: Famous Kamishibaï, Science Storytellers, and STEAM Your Body

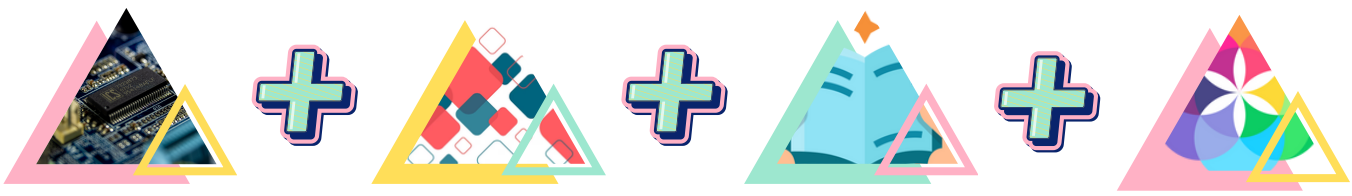
Introduction.
Begin by introducing the concept of electricity and circuits. Provide a comprehensive lecture on electrical currents and circuits, covering the basics and key principles.

Start the session with the engaging and interactive "Famous Kamishibaï" activity.
Guide the students through the process of creating their own Kamishibaï stories. Encourage them to explore the lives of famous inventors who have made significant contributions to the field of electricity, such as Thomas Edison. Divide the students into small groups and instruct them to collaborate on developing Kamishibaï stories that not only highlight their chosen inventor's life but also emphasize their notable achievements in advancing the field of electricity. Encourage the use of captivating illustrations and storytelling techniques to captivate their audience.

Transition to the "Science Storytellers" activity.
Have each group to draw cards that determine a common household appliance powered by electricity. Instruct the groups to craft short stories that not only illustrate the functioning and mechanism of the assigned appliance but also highlight its significant impact on daily life. Encourage students to think critically and consider the appliance's role in enhancing convenience and improving quality of life.

Take the learning experience a step further with the “STEAM Your Body” activity.
Mimicking the flow of electrons through wires and components in an electrical circuit. Incorporate physical movements that represent the journey of electrons, demonstrating the transfer of electrical energy in a fun and memorable way. This hands-on approach will help students visualize and understand the concepts of current and circuitry more effectively.

Discuss.
Facilitate a lively class discussion on the importance of electricity in modern life and the significant contributions made by inventors in advancing this field. Encourage students to express their thoughts and share examples of how electricity has revolutionized various aspects of our lives, from communication to transportation and beyond. This discussion will deepen their understanding and appreciation for the role of electricity in our society. Conclude the session with a short quiz that assesses students' understanding of the electrical concepts covered throughout the activities. This quiz will allow you to gauge their comprehension and identify any areas that may need further clarification or reinforcement.



Scenario 7: Journey to the Microscopic World

Science Topic: Microorganisms and microscopy
Mimesis Activities: The Secret Life of Plankton, A Matter of Scale

Introduction.
Begin the sequence by introducing the topic of microorganisms and microscopy to the students. Provide a brief overview of the importance of microorganisms in various ecosystems and their relevance to scientific research. Engage students in a short discussion or brainstorming session about what they already know or think they know about microorganisms and microscopy. This will help activate their prior knowledge and set the stage for the upcoming activities. Show a short video or present images related to microorganisms and microscopy to generate curiosity and interest among the students.

Start with the "The Secret Life of Plankton" activity.
Introduce the concept of underwater life and the diversity of microorganisms. Use storytelling and physical movement to engage students in exploring the microscopic world. Begin by telling a captivating story about the hidden world of microorganisms in the ocean. Encourage students to imagine themselves as different types of microorganisms and mimic their movements and behaviours. Discuss the importance of microorganisms in the ecosystem and their roles in sustaining life.

Transition into the "A Matter of Scale" activity.
Delve deeper into the topic of microscopic organisms and their interactions. Explain the concept of scale and how it relates to the size of microorganisms. Conduct hands-on activities where students use their bodies to simulate the movements and interactions of microorganisms. Discuss the different types of microorganisms and their functions in various ecosystems.

Conclude.
Conclude the sequence by allowing students to reflect on their learning and provide feedback on the activities. Engage in a whole-class discussion where students share their insights, observations, and questions about microorganisms and microscopy. Allow students to express their thoughts and feelings about the sequence through writing, drawing, or group discussions.
Provide feedback to students, highlighting their achievements and areas of improvement.
Encourage students to continue exploring and learning about microorganisms and microscopy outside of the classroom.

Scenario 8: EcoHeroes: Saving Biodiversity

Science Topic: Biodiversity conservation
Mimesis Activities: Famous Kamishibaï, World on Fire, Science Storytellers

Introduction.
To set the stage for the sequence, begin with an icebreaker activity that introduces the concept of biodiversity and engages students in a discussion about its significance. This will create a foundation for further exploration.

Start with the "Famous Kamishibaï" activity.
In this activity, students will discover and create a Kamishibaï, a portable paper theatre, to explore the lives of famous scientists who have contributed to biodiversity conservation. By constructing the Kamishibaï and creating stories with illustrated boards, students will develop oratory skills, storytelling abilities, and scientific culture.

Transition into the "World on Fire" activity.
Inspired by theatre plays and creative techniques, this interactive group game will challenge students to tackle questions related to biodiversity conservation. Through collaboration and teamwork, students will develop innovative solutions to address issues such as habitat destruction and species extinction.

Finish with a feedback session using the methodology of "Science Storytellers".
Have groups draw cards to determine an endangered species and its habitat. Instruct them to craft short stories addressing challenges faced by the species and conservation efforts.

Reflect.
Have groups draw cards to determine an endangered species and its habitat. Instruct them to craft short stories addressing challenges faced by the species and conservation efforts.
Provide feedback to students, highlighting their achievements and areas of improvement.