Connection to the Arts: "Dance a Transformation"

Energy Transformations Module

This hands-on activity provides students with the opportunity to further explore the concept of energy transformations. Students will work in pairs to design and perform dances to illustrate the transformation of energy from one form to another.

This offline hands-on activity can be completed after participation in the online Engage, Explore, and Explain.

Teacher objective: To demonstrate an understanding of energy flow.

Student objective: Upon completion of this activity, students will, through movement or dance, act out the transformation of energy through at least three forms.

Estimated time for activity: 20 minutes

Materials:

- Wordless music with medium tempo (For example, Lortzing's Clog Dance from "Tsar and Carpenter" or Delibes' Cortege de Bacchus from "Sylvia")

Procedure:

1. Lead a discussion about ways in which energy transforms.
2. Divide students into pairs. Ask each pair to develop a dance that shows energy transforming from one form to another.
3. Allow students time to brainstorm and to practice with the music to develop a dance.
4. Gather the class and invite students to share their energy transformation dances. At the conclusion of each dance invite the audience to guess the stages of the transformation they saw.
5. Groups continue to perform until all pairs have had a chance.

Teacher background & discussion points:

Science is made up of concrete concepts that often utilize technical language. While it is important for students to understand the terminology, research has found that those who are able to draw a connection between the concepts and their own experiences develop greater understanding. By providing students with differentiated science experiences through the arts, we can foster their creativity and provide a better understanding of scientific concepts. This "Connection to the Arts" activity provides students with an innovative approach to science as they experience a variety of learning styles such as dance, music, art, poetry, and theater. Providing diverse opportunities for students to experience science will engage all students, including those who may respond more favorably to nontraditional instruction.

In this activity, students will use what they know about energy transformation to perform a dance representing transformation of energy from one type to others. This activity illustrates the Law of Conservation of Energy which states that "energy cannot be created or destroyed, but instead is

transferred or transformed." It is important for students to recognize and portray examples of energy transformations in both living and nonliving things. In fact, by identifying the transformation of energy as it flows in a system, students will begin to recognize the relationship between matter and energy and how this relationship influences their daily lives.

Use the following questions to emphasize the scientific connection to this art activity.

- How did you know which type of energy that was?
- How could you tell that energy had been transformed?
- What gives your body energy to do this activity?
- How has energy been transformed to fuel your body?
- What did you like the best about this activity?

Review:

At the conclusion of the lesson, remember to review the following key points:

- Energy cannot be made or destroyed, but it can transform into another type of energy.
- The flow of energy can be traced.

Accommodations:

If students have difficulty brainstorming transformations or inventing a dance, a variety of accommodations can be employed.

- The teacher can help students remember some transformations they have learned about and coach them on how to act/dance to show them.
- The activity can be completed with science buddies from an older grade.
- The teacher can suggest a transformation and movements that might show it.
- Students may show only one energy transformation (for example, sunlight to growing plant) rather than several transformations.