



## San Francisco Opera's Donizetti's *LUCIA DI LAMMERMOOR* Curriculum Connections

California Content Standards  
Kindergarten through Grade 12

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### SCIENCE

*The principals of science used in Lucia di Lammermoor.*

THE FIVE SENSES: Sight, sound, touch, taste, and smell. What senses do you use while watching opera? How do the eyes "see"? Explore how optical illusions might be created with the reflection of moonlight on water. Explore the neuroscience of hallucinations and visions. (ex.: The writing of Dr. Oliver Saks)  
What parts of the body are involved in listening to music? What goes on in a brain listening to music?

#### PARTS OF THE BODY:

Identification of body parts important to performing. Ex. Diaphragm, larynx, throat, mouth, etc.  
Examine the science of men and women and psychological and physical differences.

#### LIFE SCIENCES

Research the life cycle of people, plants. Aging.  
What is insanity?  
What are the key factors for maintaining positive mental health?  
How did Donizetti die? Would he have died as young today?

#### PHYSICAL SCIENCES

Explore times of day of different scenes in opera; how does lighting affect the mood?  
How does light work onstage, sets a mood in opera? What are principles of light?  
Explore different kinds of light: Cold, light, warm light.  
What are materials used in opera? Identify the materials, and identify their sources.

#### THE ELEMENTS

Fire, Water, Earth, Metal, Air, Wood.

#### PHYSICS

Sound: Voice, Instruments, Acoustics, Amplification, Recording.

## ACTIVITIES

List references to nature in *Lucia di Lammermoor*.

Research the Lammermuir Hills, the hills in Southern Scotland where the story is set. What species of plants and animals can be found there?

Research the scientific discoveries of *Lucia di Lammermoor*'s time; what would she have known about the world?

What would a scientist be like then? How are they different from scientists today?

What is forensic science? How might a forensics team begin to investigate the cause of Lucia and Edgardo's deaths?

Research the architecture of Scotland during the time of *Lucia di Lammermoor*.

What kinds of building materials would have been used during this time? How were castles constructed? Design your own castle.

Replicate materials used in opera in a 2D manner, as a set designer would do. How do you make paper look like stone, wood?

Metalurgy for making weapons.