



**San Francisco Opera's**  
**Charest's *THE TRIPLETS OF BELLEVILLE***  
**Curriculum Connections**  
**California Content Standards**  
**Kindergarten through Grade 12**

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**SCIENCE**

*The principals of science used in The Triplets of Belleville.*

THE FIVE SENSES:

Sight, sound, touch, taste, and smell.

What are senses involved in experiencing opera?

PARTS OF THE BODY:

Identification of body parts important to performing. Ex. Diaphragm, larynx, throat, mouth, etc.

Identification of body parts associated with hearing music, how ears work.

Identification of body parts associated with viewing a film, how eyes work.

Examine the science of men and women and psychological and physical differences.

Learn about the anatomy of the legs – bones and muscles (human, dogs, frogs).

Madame Souza can see that Champion is sad and she seeks a remedy. Both find their purpose when Champion takes to bicycling. How might physical conditioning lead to achievement and personal satisfaction?

How does the body react in times of stress like those that occur in the film?

THE ELEMENTS

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

What kinds of weather is depicted in the film? How does weather impact the lives of the characters?

The impact of weather on the Tour de France. On safe passage across the ocean.

LIFE SCIENCE

Study examples of aging in the film. How does time impact how the Triplets move and sing? Compare how Bruno, Champion and Madame Souza age over the course of the film.

Survey and describe the legs of characters in the film. Ex: Champion's calves are oversized due to bicycling. He has leg cramps. Can they be prevented?

Do animals dream? Explore how neuroscience is monitoring the brain activity of animals while they are awake and when they sleep.

## PHYSICS

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

Speed – Compare the speed of trains and the speed of frames per second in film versus the human pace.

TED-Ed - Animation basics: The art of timing and spacing

Expert timing and spacing is what separates a slide show from a truly amazing animation. TED-Ed demonstrates, by manipulating various bouncing balls, how the smallest adjustments from frame to frame can make all the difference.

<http://ed.ted.com/lessons/animation-basics-the-art-of-timing-and-spacing-ted-ed>

## ACTIVITIES

Explore the characters' psychological motivations.

The physiology and psychology of exercising: what goes on when we ride a bicycle or enter in a difficult race?  
Create your own training regimen.

List references to natural vs. urban environments in *The Triplets of Belleville*. Record the sounds that you find in natural and urban environments.

Explore the sound qualities of ordinary everyday objects.

Listen to and/or record sounds. Try to imitate them with instruments or your voice.

Create your own instrument from everyday objects.

If you were hired as an architect to retrofit the Belleville Theatre, how would you make the building more energy efficient?

Animate a bouncing ball.