

**Destination L1: A Thematic Unit**

**Joseph-Louis LaGrange**

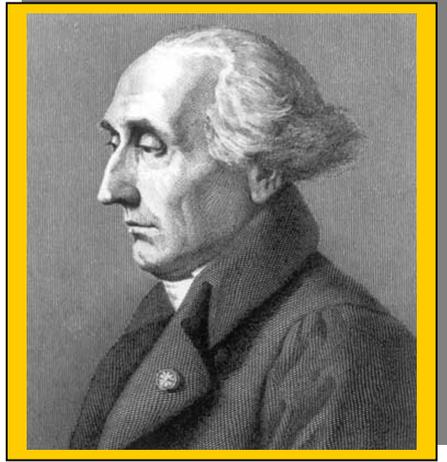
**TEACHER GUIDE - HISTORY**

**BACKGROUND INFORMATION**

The Genesis spacecraft went into perfect orbit insertion about the first LaGrangian point, L1, on November 16, 2001. L1 is a point between Earth and the sun where the gravity of both bodies is balanced. This balance allows the spacecraft to orbit for about 30 months collecting solar wind.

LaGrangian points are named after their discoverer Joseph-Louis LaGrange, a French mathematician. Considered the greatest mathematician of his time, LaGrange mathematically discovered five special points in the vicinity of two orbiting masses where the combined gravitational forces are zero. Thus, a third object, can remain at rest between them.

In this activity, students study the life of LaGrange and create a sequence map of the important events in his life.



Joseph-Louis LaGrange

**NATIONAL SCIENCE STANDARDS ADDRESSED**

(Source – *National Science Education Standards*)

**Grades 5-8**

[History and Nature of Science](#)

- Science as a human endeavor
- History of science

**Grades 9-12**

[History and Nature of Science](#)

- Science as a human endeavor
- Historical perspectives

(View a full text of the [National Science Education Standards.](#))

**NATIONAL HISTORY STANDARDS ADDRESSED**

(Source - *Content Knowledge: A Compendium of Standards and Benchmarks for K-12 Education—3<sup>rd</sup> Edition*)

**Grades 5-6**

[Historical Understanding](#)

- Understands that specific individuals had a great impact on history.

**Grades 6-8**

[Historical Understanding](#)

- Understands and knows how to analyze chronological relationships and patterns.
- Knows how to diagram the temporal structure of events in autobiographies, biographies, literary narratives, and historical narratives and understands the differences between them.
- Understands historical perspective.

(View a full text of the McREL's [Compendium of Standards and Benchmarks for K-12 Education.](#))



## MATERIALS

For each student:

- Student Text [Joseph-Louis LaGrange](#)
- Student Activity [Joseph-Louis LaGrange](#)

## PROCEDURE

1. Ask students to read the biography of Joseph-Louis LaGrange. As they read, have them identify the important events in his life and the contributions he made to mathematics and science.
2. Ask students to decide what the most important events were in LaGrange's life and have them fill in the chart listing the date and event. Note that two logical points they can put at the beginning and end of the sequence are his birth and death. Also note that there are more events in the narrative than there are boxes in the chart. Students will have to decide which events to put into the chart and which ones to leave out.
3. After they have completed their chart, ask them to share their charts either in small groups or with the entire class. Have them compare their chart with another students chart to look at similarities and differences. Ask students to write a paragraph on LaGrange's impact on history.

### Extensions

1. Ask students to make a timeline of LaGrange's life and important world events.
2. Ask students to write a similar biography of the other people mentioned in the LaGrange biography. For example, Leonhard Euler, Frederick II, or Sir Isaac Newton.
3. Ask students to write a paper on one of LaGrange's discoveries.

## TEACHER RESOURCES

### URLs

<http://www-groups.dcs.st-and.ac.uk/~history/index.html>

MacTutor History of Mathematics Archive: Mathematician Biographies

<http://www-groups.dcs.st-and.ac.uk/~history/Mathematicians/Lagrange.html>

A thorough biography of LaGrange with numerous cross-reference links to related topics