

# Maya and Inca Mathematics

## HSI Lanzamiento Community of Practice



**FACILITATORS: TIM MELVIN AND SALVADOR RICO**  
**Semester: Fall 2022**

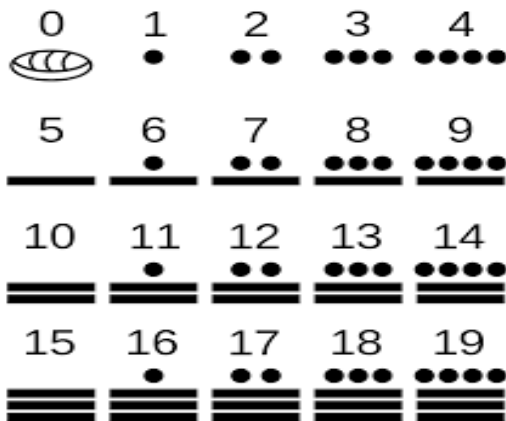
Duration: Four two-hour sessions from 1:00 PM to 3:00 PM on the following days:

Friday, September 16<sup>th</sup>  
 Friday, October 14<sup>th</sup>  
 Friday, November 18<sup>th</sup>  
 Friday, December 2<sup>nd</sup>

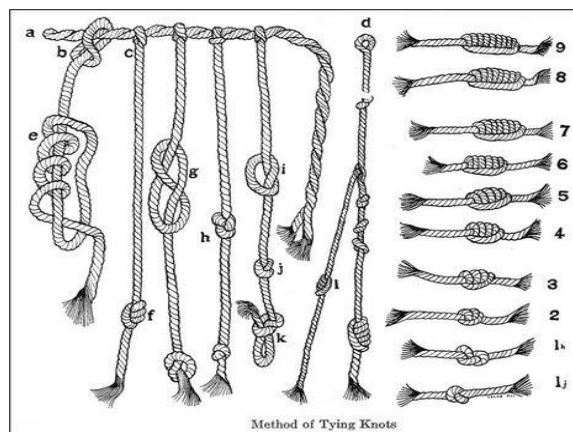
The two-hour session would consist of content exposition supplemented with activities where participants will practice with some of the mathematical concepts.

### TOPICS

#### Maya numeral system



#### Inca numeral system



- 1) Historical counting systems
  - a) Introduction and basic number and counting systems
- 2) The number and counting system of the Inca civilization

- a) Historical background
- b) Counting boards
- c) The Quipu

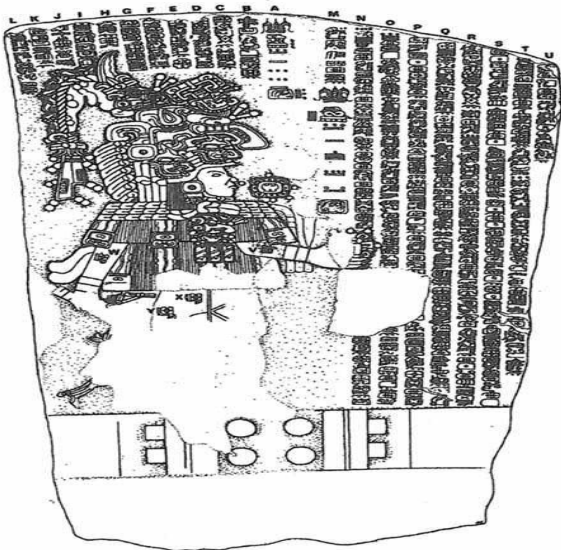
### Hindu–Arabic numeral system

European (descended from the West Arabic)	0	1	2	3	4	5	6	7	8	9
Arabic-Indic	٠	١	٢	٣	٤	٥	٦	٧	٨	٩
Eastern Arabic-Indic (Persian and Urdu)	۰	۱	۲	۳	۴	۵	۶	۷	۸	۹
Devanagari (Hindi)	०	१	२	३	४	५	६	७	८	९
Tamil	௦	௧	௨	௩	௪	௫	௬	௭	௮	௯

[https://en.wikipedia.org/wiki/File:Arabic\\_numerals-en.svg](https://en.wikipedia.org/wiki/File:Arabic_numerals-en.svg)

- 3) The Hindu – Arabic number system
  - a) Evolution
  - b) The positional system
  - c) Transmission to Europe
- 4) The development and use of different number bases
  - a) Introduction and basics
  - b) Decimal number systems
  - c) Base conversion

La Mojarra: Oldest Maya calendar



Friar Diego de Landa



- 5) The Mayan numerical system.
  - a) Historical background
    - i) Diego de Landa
    - ii) Act of Faith of Mani



- iii) The Dresden Codex
- b) The Mayan number system
- c) Operations with Mayan numbers
- d) Mayan calendars
  - i) 2012, the misinterpretation leading to the “Maya apocalypse”
  - ii) Ernst Forstemann
  - iii) The Tzolk’in Calendar
  - iv) The Haab Calendar

The Tzolk’in Calendar



The Haab Calendar



## Community of Practice Fall 2022



### Equitable and Inclusive Course Design and Teaching Practices

Facilitator Danielle Bruns

Fridays from 1-3 pm

Zoom link:

<https://santarosa-edu.zoom.us/j/99085378420>

Description: We will examine research-based strategies for creating a more equitable and inclusive learning environment for all students

September 23<sup>rd</sup>: Student Centered Course Design

We will discuss creating a student friendly syllabus, equitable grading practices, using checklists and rubrics to ensure equity and aligning assessments and assignments with course outcomes

October 14<sup>th</sup>: Active Learning Strategies

We will explore the active learning cycle, how to teach note-taking strategies, discuss lecture structures, and planning and facilitating discussions

November 4<sup>th</sup>: Supportive Learning Environment

We will explore ways of welcoming Students into your course, engaging underprepared learners, fostering a growth mindset and checking for student understanding

December 2<sup>nd</sup>: Inclusive Teaching

We will examine practices for managing bias, reducing imposter syndrome, and creating an inclusive course



Title V HSI “Lanzamiento” Initiative  
Community of Practice (CoP)  
Fall 2022

***Teaching to Transgress: Education as the Practice of Freedom***  
**by bell hooks**

Facilitators: Leticia Contreras and Freddy Martinez

Dates: Oct 7, Oct 21, Nov 4, Nov 18

Times: 10am – 12pm

Zoom Link: <https://santarosa-edu.zoom.us/j/4015352334>

**Description**

In this CoP, we will be discussing bell hooks’s book *Teaching to Transgress*, which covers theories of liberatory pedagogy including engaged pedagogy, theory as liberatory practice and teaching in community. We will discuss these topics to grow our pedagogical knowledge and share our classroom experiences. This will be a space where we can ask questions about past teaching experiences, discuss our pedagogical practices, and learn from one another.

**Date: Friday, October 7**

In this discussion we will cover power in the classroom and how to build a more participatory environment. Please read Ch. 1 – 4 for this session.

**Date: Friday, October 21**

We will cover the importance of sharing experience (both ours and our students’) in the classroom. Additionally, we will look at feminist thought and scholarship and discuss the criticisms of how we use sources in our classrooms. Please read Ch. 5 – 9 for this session.

**Date: Friday, November 4**

We will discuss how to build a teaching community. We will cover how language shapes power and impacts our discourse in the classroom. Please read Ch. 10 – 12 for this session.

**Date: Friday, November 18**

Our final session will cover the final two chapters, which cover our embodiment in the classroom and the joy of teaching without limits. Please read Ch. 13 – 14 for this session.