

## Lesson Plan

### Calendar Count

**Book:** *Maya Civilization*

**Series:** Civilizations of the World

**Level:** Navigator

### Objective

To help students explore place value by studying calendar systems.

### Supplies

- *Maya Civilization* book
- Whiteboard
- Calendar Count worksheet (attached)

### Before the Activity

Read through the *Maya Civilization* book, or assign it to students to read on their own. Print a copy of the Calendar Count worksheet for each student.

### Activity

The Maya made many discoveries in math and science. The “Maya Math” sidebar on page 26 and the “Maya Calendars” feature on pages 28 and 29 describe some of these achievements. Today, students will take a closer look at the Haab calendar. To start, review the following information from the Maya Calendars feature:

- How many months are in the Haab calendar? (Answer: 18)
- How many days are in each month? (Answer: 20)
- How many extra unlucky days are added at the end? (Answer: 5)
- How many total days were in one year? (Answer: 365)

Much of the world today uses a different calendar, the Gregorian calendar. This calendar also has 365 days. However, it is divided up differently. It has 12 months. Each month has between 28 and 31 days. Every so often, an extra day is added to the month of February. In those years, the month has 29 days instead of only 28. Those years are known as leap years.

But the Gregorian calendar can also count longer periods of time. Write the following periods and definitions on the whiteboard:

- decade: a period of 10 years
- century: a period of 100 years
- millennium: a period of 1000 years

In other words, a decade is 10 years, and a century is 10 decades, and a millennium is 10 centuries. As a result, Gregorian dates are written base 10. That means each digit is 10 times as large as the previous digit. For example, “1987” means 7 years, 8 decades, 9 centuries, and 1 millennium since the calendar’s start.

The Maya used a system known as the Long Count for tracking longer periods of time.

Their system had the following categories:

- *k’in* (day)
- *winal* (month): a period of 20 days
- *tun* (year): a period of 18 months
- *k’atun*: a period of 20 *tuns*
- *b’aktun*: a period of 20 *k’atuns*

Write these categories and definitions on the whiteboard as well. Point out that there are only 18 *winal* (months) in a *tun* (year). But in general, this calendar uses base 20 counting. That means most categories are 20 times as large as the previous category.

To practice with place value, give each student a Calendar Count worksheet. Have them use the details on the whiteboard to answer each question.

[Note: details about the Maya calendars can be found at <http://www.famsi.org/research/calendrics/index.html>]

### **Evaluation**

Use the attached answer key to give students 1 point for each correct answer, for up to 10 points.

### **Standards**

This lesson may be used to address the Common Core State Standards’ mathematics standards, grade 4 (CCSS.MATH.CONTENT.4.NBT.A.1), and the National Council for Social Studies Standards’ standards 1 and 8.

## Calendar Count

1. In the Gregorian calendar, how many years are in a century?
2. How many decades are in a century?
3. How many centuries are in a millennium?
4. How many decades are in a millennium?
5. In the Long Count, how many *k'in* are in a *winal*?
6. How many days are in a *tun*?
7. How many *k'atuns* are in a *b'aktun*?
8. How many *tuns* are in a *b'aktun*?
9. In the Gregorian calendar, if someone writes the year 1492, which digit represents the decade?
10. In the Gregorian calendar, if someone writes the year 2019, which digit represents the millennium?

## Calendar Count ANSWER KEY

1. In the Gregorian calendar, how many years are in a century?

100

2. How many decades are in a century?

10

3. How many centuries are in a millennium?

10

4. How many decades are in a millennium?

100

5. In the Long Count, how many *k'in* are in a *winal*?

20

6. How many days are in a *tun*?

360

7. How many *k'atuns* are in a *b'aktun*?

20

8. How many *tuns* are in a *b'aktun*?

400

9. In the Gregorian calendar, if someone writes the year 1492, which digit represents the decade?

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10. In the Gregorian calendar, if someone writes the year 2019, which digit represents the millennium?

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