

Chinese Zodiac

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1. I will be able to teach 6th grade students how the Chinese Zodiac is structured mathematically in my math intervention classes. These are students who struggle to succeed in math and need remediation. Most students are in my classroom for 45 minutes daily.

For this TIP I will share this lesson with the all the 6th grade math teachers, since this lesson meets a 6th grade indicator. I will also collaborate with the Reading Intervention teacher and have her create a Venn Diagram, comparing and contrasting the information on the Zodiacs.

2. The Chinese Zodiac represents a cyclical concept of time, rather than the Western linear concept of time. The Chinese Zodiac, or Chinese animal signs, is based on 60-year cycles consisting of 5 cycles of the 12 zodiac animals. When these cycles began is not exactly clear, but the 12 groups of animals had appeared during the Warring States Period and the Han Dynasty commonly recognized the identity of the animals.
3. There are several purposes of this lesson. First is to show 6th grade students how mathematics is used in the Chinese Zodiac system. Second is to compare the Chinese Zodiac to the zodiac signs we use in the United States. Finally allow students to see how the Chinese system works, find their symbol, and tell what it means.

State of Ohio Mathematics Content Standards (6th Grade)

Number, Number Sense and Operations Strand

02. Find and use the prime factorization of composite numbers. For example:
 - b. Use the prime factorization to recognize the least common multiple (LCM)

4. Lesson Plan

Day 1

- 1.) After students know how to find use the prime factorization of numbers to find the least common multiple (LCM), use this lesson to reinforce the concept.
- 2.) Hand students the Chinese Zodiac Problem, numbers 1 and 2 first thing when they walk into class. Have students complete for a grade (This should take no longer than 20 minutes if students understand the concepts.
- 3.) Due to the small group size, I will walk around the room as the students complete the problem and assign them the following point values based on their answers.

(If your class size is larger, you could have students put a secret number at the top of their paper to maintain anonymity, collect everyone's paper and redistribute to a peer. Place the following guidelines on the projector and have

students decide how many points the answer is worth. This is a good practice for the Achievement Test)

3 Point Answers- Students should have their grids broken down into 3 sections. **One section** should show their work, finding the LCM of 5 and 12 to be 60. **Section 2** should have students adding 60 to 1984 and realize that in 2044 the next cycle will begin. **Section 3** will vary but should show students subtract the year they were born from 2044 to find how old they will be when the new cycle begins.

2 point Answers- will have 2 of the three sections answered correctly.

1 point Answers- will have 1 of the three sections answered correctly.

0 point Answers- will have 0 sections answered correctly.

- 4.) Next I will ask the students what they know about the Zodiac or Astrology in the United States. I will ask students what they know about the Chinese Zodiac. Then using a Smart Board I will demonstrate what they will be expected to do tomorrow in the computer lab.

Day 2

- 1.) Take students to the computer lab.
- 2.) Hand out the Web quest Worksheet “Western and Chinese Zodiacs”. I will also post this web quest on my website so students can copy and paste the links to hopefully eliminate typing errors. I would like them to complete the task on paper, as it will be easier for my remedial students.
- 3.) Have students follow the links and answer the questions. At the end of the class period have students turn in for a grade.

Day 3

- 1.) In Reading Intervention, Using the completed and graded Web Quest on “Western and Chinese Zodiacs”, Students will create a Venn Diagram, comparing and Contrasting the Western to Chinese Zodiac. See Sample Answers below.
- 2.) Collect for a grade

Things they share in common:

1. both have animals
2. western system has 12 signs, chinese has 12 animals
3. parts of both revolve around the solar calendar

Differences:

Chinese

1. Cyclical concept of time
2. lunar calendar
3. begins in late January Early February

Western

1. Linear concept of time
2. solar calendar
3. begins on the new year, January 1st
based on constellations

5. References:

Bancho, P., Borton, L., Bui, D., Bui, D., Bui, P., Chang, M., et al. (n.d.). Chinese Zodiac. In *Turvey Asian Books*. Retrieved April 12, 2008, from http://www.turvey.com/entertainment/chinese_horoscope.htm

Chinese Zodiac. (2005). *Chinatown Connection*. Retrieved April 12, 2008, from http://www.chinatownconnection.com/chinese_zodiac.htm

Zodiac. (2001). *Wikipedia*. Retrieved April 12, 2008, from <http://en.wikipedia.org/wiki/Zodiac>

Western and Chinese Zodiacs

Directions: Use the links below to find the answers to the following questions.

<http://en.wikipedia.org/wiki/Zodiac>

Zodiac in Astrology

- 2.) The zodiac is the belt or band of _____ through which the _____, _____, and _____ move on their journey across the sky.
- 3.) Western astrology the signs of the zodiac are believed to represent _____ basic personality types.

Western Zodiac

- 4.) The modern western _____ signs are simplifications of conventional pictorial representations of the signs, used since _____ times.

Chinese and Other Zodiacs

- 5.) Chinese astrology also has a system of _____ signs sometimes also referred to as "zodiac".
- 6.) Like its Western counterpart, the Chinese zodiac features _____.
- 7.) The Chinese zodiac associates each animal with both one _____ and one solar _____.

http://www.chinatownconnection.com/chinese_zodiac.htm

Chinese Zodiac Background and Concept

- 8.) The Chinese Lunar Calendar is based on the cycles of the _____, and is constructed in a different fashion than the Western _____ calendar.
- 9.) On the Chinese calendar when does the beginning of the year fall?

Chinese Zodiac Sign Background

- 10.) In the United States we have a _____ perception of time, which means time never repeats.
- 11.) In China, dating methods are _____, meaning it is repeated time after time according to a pattern.

http://www.tuvy.com/entertainment/chinese_horoscope.htm

Find your Chinese Zodiac

12.) When is your birthday? _____

What is your Chinese Zodiac Sign? _____

What does your sign say about you? (**Hint: Those of you that were born in January be careful which year/ sign you use*)

Answers

- 2.) Constellations; sun, moon, and planets
- 3.) 12
- 4.) astrological, Hellenistic
- 5.) 12
- 6.) animals
- 7.) month; year
- 8.) moon; solar
- 9.) somewhere between late January and early February
- 10.) linear
- 11.) cyclical

Chinese Zodiac Problem (Standard N2)

1.) Now you need to figure this out before we go on. The Chinese Zodiac is a little more complicated than the astrology we use in the United States. In the Chinese Zodiac there are 5 elements in their Yin and Yang forms: wood, metal, water, fire, and earth. There are 12 Zodiac animals: rat, ox, tiger, rabbit, dragon, snake, horse, sheep, monkey, rooster, dog, and boar.

If you were born in 1984, the year the current cycle began, you would be considered a "wood rat". **Determine** what year and how old you will be when these two cycles meet up again. **Show** or Explain your work. (3 points)