25% of women

$2 \times 7 \div (15 + 10) - 5 = ?$

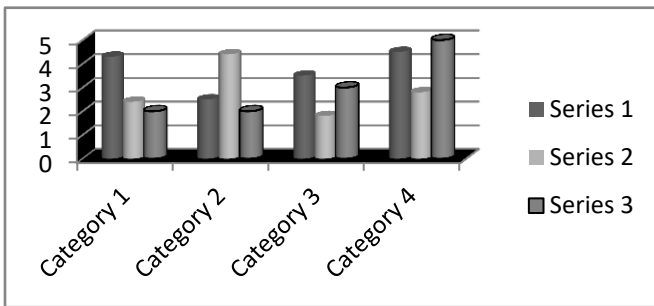$1/5 + 3/8 = ?$

For Sale 1600 sq. ft. house on ½ acre 3 miles from Rt. 95. Asking 357k

A 5 yard penalty was called on the 50 yard line

# Teaching the Language of Math in the ESOL Classroom

## by Ann Pellagrini



TODAY ONLY 30% off EVERYTHING

$10 + X + \text{IIII IIII} = XXX$

## Paragraph 1 Beginning of Chinese New Year

## Low Level (See other levels)

1. **Working with Numbers**
   a. **Write numbers in words** – t-w-o  s-i-x  z-e-r-o  z-e-r-o
   b. **Pronunciation**
      i. Pronounce two thousand, six hundred
      ii. Pronounce current year – two thousand, nineteen, twenty nineteen

2. **Introduce Relevant Examples**
   a. What year were they born?
      i. Write in different ways. Ex: 1993; one nine nine three
      ii. Pronounce – one thousand nine hundred ninety three, nineteen ninety three

3. **Timeline**

| 2600 | 0 | 2019 |
|---|---|---|
| I_____ | I_____ | I |
| BC | AD | |
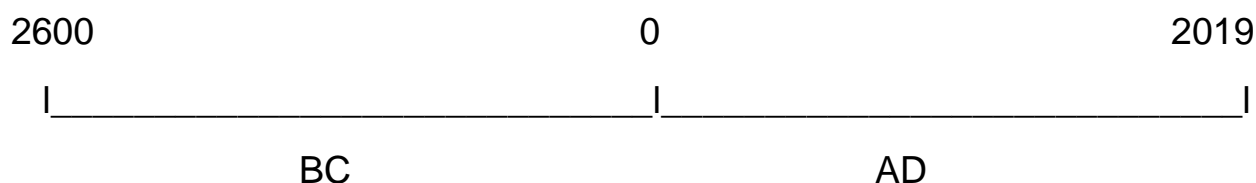
   a. **Ask various questions about either side of ZERO having BC or AD answer**
      I.    When was the American Revolution? BC or AD?
      II.   When did Columbus arrive in the Americas? **(1492 AD)**
      III.  When were the pyramids of Egypt built? **(2560 BC)**

IV. fine some historical event to which your particular class can relate

b. **Create Timeline of their lives and important events** (begin w/their birth year to current year)

# Intermediate Level (See Other Levels)

**Add:**

1. Pronounce twenty six hundred
2. Write numbers in words - TWO THOUSAND SIX HUNDRED
3. Explain BC = Before Christ   AD = After Death
4. Introduce "half"

   a. What is **half way** between 2019 AD and 0? (1009 AD) plot
      i. What's half of that? (505 AD) plot, etc.

   b. What is **half way** between 2600 BC and 0?  (1300 BC) plot
      ii. What's half of that? (650 BC) plot, etc.

# High Level (See Other Levels)

**Add:**

1. How many years from 2600 BC to 2019 AD? Students use cell phone calculators **(2600 to 0 is 2600 + 2019 = 4619 years)**

# CCRs: R7; W6; MP1 + TECHNOLOGY

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## Paragraph 2 - 2014 is 4712

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# Low Level (See Other Levels)

1. Calendar – create calendars for January & February of current year filling in the dates.
   a. Pronounce & spell months
   b. Discuss "early, middle & late" parts of the month
   c. Create Graphic Organizer - Have students color "late January to the middle of February to show possible times when Chinese New Year can begin.
2. Write the years (see Paragraph 1)
3. Pronounce years (see Paragraph 1)
4. Introduce shapes – what shape is the moon? (lunar = moon)
5. **Activities A – C** Fill-in chart of What Our Year is in Chinese Year

### Activity A

| 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
|------|------|------|------|------|------|
| 4712 |      | 4714 |      | 4716 |      |

### Activity B

| 2014 |      | 2016 |      | 2018 | 2019 |
|------|------|------|------|------|------|
|      | 4713 |      | 4715 |      |      |

### Activity C

| 2014 |      | 2016 |      |      | 2019 |
|------|------|------|------|------|------|
| 4712 |      | 4714 | 4715 |      |      |

# Intermediate Level (See Other Levels)

## Add/Instead of:

1. If 2014 is 4712, then what is…?
   a. Use years 2014 + ? = 2019
   b. Add ? to 4712 **to get the current year of Chinese Lunar Year.**

c. **Find the difference between 4712 and 2014 (4712 – 2014 = 2698)**

## Add 2698 to all other dates

1. **Have students find years of things you are studying such as:**

*What is the year of the Declaration of Independence? (1776 + 2968 = 4474)*

2. **Years relevant to Students:**
   - Date arrived in US
   - Their birth year
   - Birth of 1st child, of last child?
   - Other important life dates

3. **Future Dates -** when they'll be 50 years old, 75, 100, etc.

# High Level (See Other Levels)

# CCRs MP.1; MP.4; MP.6; Benchmark R3.4d, W3.3d

## Paragraph 3 Animals of the Chinese Zodiac

**NOTE: Depending on your class, at any level you could have them use the Internet via Smartphones &/or computers to find the list of animals.**

## <u>CHARTS</u>

## Low Level (See Other Levels)

NOTE: YOU WOULD NOT DO THESE ALL AT ONCE.

### 1. List of 12 Chinese Zodiac Animals in order

| | | |
|---|---|---|
| 1. Rat | 5. Dragon | 9. Monkey |
| 2. Ox | 6. Snake | 10. Rooster |
| 3. Tiger | 7. Horse | 11. Dog |
| 4. Rabbit | 8. Sheep | 12. Boar |

- Ask questions and play games such as "Who is number one? What number is the Rat?
- Have them pick a CZ animal and line up in correct order.
- Introduce before/after, between

### 2. Complete the chart

(*<u>Attention to Detail - Valuable higher Ed. & work skill</u>*)

## DON'T ASSUME YOUR STUDENTS KNOW HOW TO DO THIS - you'd be surprised!

**a. Using their list, Students fill-in the table with the animal in the correct order.**

| 1. Rat | 2. | 3. | 4. | 5. | 6. |
|--------|-----|-----|------|------|----------|
| 7. | 8. | 9. | 10. | 11. | 12. Boar |

**b**. **Different Chart Layout for fill-in (Can use ARROWS TO SHOW DIRECTION)**

| 1. Rat | 7. |
|--------|-----|
| 2. | 8. |
| 3. | 9. |
| 4. | 10. |
| 5. | 11. |
| 6. | 12. Boar |

## 3. How many – Using body part vocabulary

a) How many legs does the Horse have?
b) How many legs do 3 Horses have?
c) Eyes, ears, tails, horns, etc.

## 4. Writing about the animals

a) The Rat has one tail and four legs.
b) My favorite animal of the Chinese Zodiac is ___.  It has …

# Intermediate Level (See Other Levels)

**Add/Instead of:**

*1.* **Introduce/Review Ordinal Numbers** - Who *is first?  Who is 7ᵗʰ?  In what place is the Monkey?  What animal is between the tenth and twelfth position?*

2. **Grammar Activities**: Ordinal #s with grammar activities before, after, between, next to, above/below

3. **Writing Activities** In what position is….?
4. **Compare/Contrast**
   a) Using a Venn Diagram or other Visual Organizers, you can compare and contrast the different animals.

# High Level (See Other Levels)

**Add:**

**Have CZ Animals arranged in a Table/Chart with multiple rows &columns for Q & A**

> **Q.** Which animal is in Row x, Column X?

>> **A.** Animal is in Row X, Column  X.

> **Q.** Which is in cell…?

>> **A.** X is in cell…

*NOTE – This prepares them for reading & interpreting charts and locating information ALL CCR STUFF*

## Odd/Even Numbers

| | |
|---|---|
| **1. Rat** | **2.** |
| **3.** | **4.** |
| **5.** | **6.** |
| **7.** | **8.** |
| **9.** | **10.** |
| **11.** | **12. Boar** |

## FROM THE LIST - Make statement. Ask & answer questions (who, which)

| | |
|---|---|
| The Rat is an odd number. | The Boar is an even number. |
| Name two animals that are odd numbered. | Name two animals that are even numbered. |
| What number is the Dog? 11 | What number is the Rabbit? 4 |
| What position is the Dog? 11th | What place is the Rabbit? 4th |
| **Can you count to 20? By even numbers? 30? 50?** | **Can you count to 21 by odd numbers? 31? 51?** |

## CCRs: SL A2; MP.5; R Anchor 7; MP.6; L6 domain specific vocab

# TABLES & GRAPHS

**Who Are We**? Finding Our Chinese Zodiac Animals **OR** collecting, plotting, verifying, analyzing, interpreting data and making predictions

*You can choose whether to give your students the list or, if you prefer, you can have them find their CZ animal using technology. (CCR Technology)*

# Low Level (See Other Levels)

## Tally Table

1. **Total Class** – Find out which CZ Animals and how many of each is in your class and show using Tally marks.

### FOR EXAMPLE – Collect, plot & verify accuracy

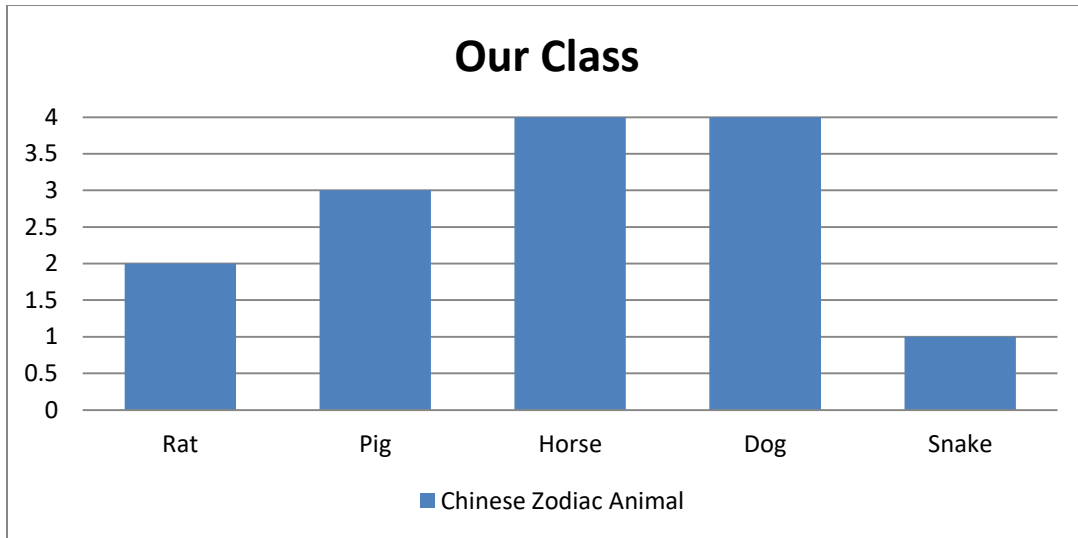| Our Class* | |
|---|---|
| *Chinese Zodiac Animal* | *How Many* |
| Rat | II |
| Pig | III |
| Horse | IIII |
| Dog | IIII |
| Snake | I |
| Total (equals sample total)* | IIII IIII IIII |

## Analyze Data:

a) **How many Students are in class now (Data Sample*)?**
b) **Does the information (Data) collected for our Table equal the amount of Students we asked? (Verify)**
c) **Which animal are the <u>most</u> students? Least? (Analyze)**
d) **How many CZ Animals in our chart? How many animals <u>are not</u> in our class? Etc.**

## Bar Graphs

### 1. Let the students' inner Picasso out.

a. From the information collected in the Tally Table, students can make a bar chart to illustrate the information. ***Note: This is just one example of many types of bar graphs.***

## Our Class



# Intermediate Level (See Other Levels)

**Add:**

**Expanded Table**

| Our Class* | | | |
|---|---|---|---|
| | | | |
| *Chinese Zodiac Animal* | *Female* | *Male* | *How Many* |
| Rat | 1 | 1 | 2 |
| Pig | 0 | 3 | 3 |
| Horse | 2 | 2 | 4 |
| Dog | 1 | 3 | 4 |
| Snake | 1 | 0 | 1 |
| Total (equals sample total)* | 5 | 9 | 14 |

*Cross check vertically and horizontally to ensure accuracy

# Other Math Related Activities

1. **Introduce Percentages – *Inquire if any Student in your class knows how to do percentages and they can help to lead the class.***
   - Out of the 12 CZ Animals, how many of each is in our class?
     - o Anyone know what % this is?
       - ▪ Let's review together
   - **Which CZA are NOT in our class**
     - o Anyone know what % this is?
       - ▪ Let's review together


# High Level (See Other Levels)

**Add:**

# Table

1. **Individual Group Data** After doing the whole class, you can break class into groups and they make a Table of their group.
   a) Compare each group to the whole class
     - i. Analyze the data – Discuss the differences and try to find how this could be important
     - ii. Look at what CZ Animals are NOT in the groups vs the whole class chart

## For example: Group A had no Rats but the Class has two.

- **What does that mean??? Is Group A a good representation of our class? Why? Why not?**


## *Possible Conclusion: Small Sample groups <u>might not</u> be a good representation of the overall sector*

## Other Math Related Activities

**1. Introduce Fractions -** *Inquire if anyone in your class knows how to do percentages and they can help to lead the class.*

- **a. Out of the 12 CZ Animals, how many of each is in our class?**
  - Anyone know what fraction this is? (x/12)
    - o Review together
- **b. Which CZA are NOT in our class**
  - Anyone know what fraction this is? (x/12)
    - o Review together

## Digging deeper and going wider into the lesson is the direction Adult Ed is moving so DIG ON!

**2. CZ Animal Characteristics** *If you want to go deeper into the* characteristics (vocabulary) of *the animals as well as their* <u>compatibility,</u> *you can Google this very easily to find one appropriate for your level. This is a great vocabulary builder and can generate some great graphic organizers, discussions and/or writing***.**

## NOTE: CCRs See Ann's List – most are covered here

## Paragraph 4 - The Number  9

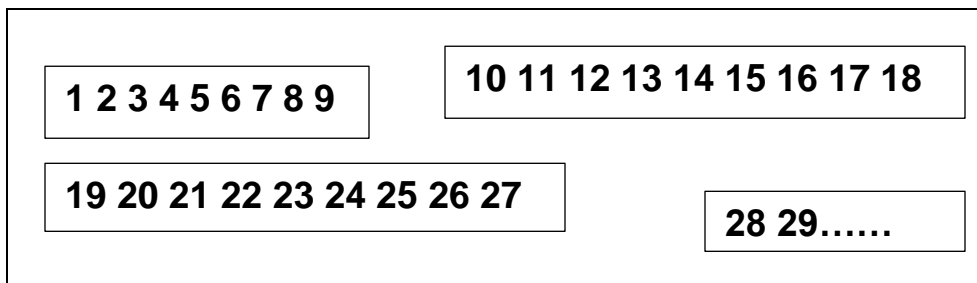## Low Level (See Other Levels)

### How Many 9s Make 99?

#### 1. Counting 1 – 99
   a) Student fill in boxes w/correct number
   b) Counting by 9, they make a block of 9 until they
      reach 99
   c) Color each group of 9 a different color

| 1 | 2 | 3 | 4 | | 6 | 7 | | 9 |
|---|---|---|---|---|---|---|---|---|
| 10 | 11 | 12 | | | 15 | | | 18 |
| | 20 | | 22 | | 24 | | 26 | |

#### 2. Grouping by 9s
   **a.** Students cut strips of 9 blocks from the grid and group
      them

| | |
|---|---|
| **1 2 3 4 5 6 7 8 9** | **10 11 12 13 14 15 16 17 18** |
| **19 20 21 22 23 24 25 26 27** | **28 29……** |

**OR -**

   **b. On paper,** Students draw and number the "schools" of 9
   fish

**c. Ask: How many groups of 9 fish make 99?**

**3. Addition**
      **a.** If you want to try addition of groups
         (9+9+9+9+9+9+9+9+9+9+9=99)

# Intermediate Level (See Other Levels)

**Add:**

**1. How Many 9s Make 99?**

a. Multiplication: 9 x ? = 99
b. Division: 99 ÷? = 11

**2. How many ways can you write 99?**

Students try to think of as many ways to "write" the number 99.

# For example: 100-1 = 99 or 102 – 3 = 99, etc.

# High Level (See Other Levels)

**Add:**

**1. Word Problems Using Proportions**

**You're having a party soon. How many fish will you need to feed...?** 

**1 fish feeds 4 people OR   1 fish**
                                    **4 people**

# Students use Smartphones to do math (CCR)

**1. How many fish do you need to feed our class of 12 students?**

> **1 fish**        **X fish**
> **4 people**        **12 people**

**1 fish x 12 people = 12    12 ÷ 4 people = 3 fish you will need**

**2. How many fish to feed 18?**

> **1 fish**        **X fish**
> **4 people**        **18 people**

**3. How many fish to feed your family?**

# CCRs & Benchmarks – most (see list)