

# CrossTalk

CROSSROADS Language Studio's Newsletter November, 2021

## PRIME NUMBERS AND NATURE

Earlier this year in a large area of Eastern U.S.A., an extraordinary event occurred; something that is only witnessed once every 17 years.

There are numerous species of cicadas living on our planet, but only seven are classified as “periodical” cicadas and all seven can be found only in the U.S.A. Periodical cicadas emerge from their underground hibernation every 13 or 17 years to find a mate, reproduce and die after a comparatively very short period of time above ground – barely a week or two!. That’s a long wait for such a short fling. The species that emerged this year after 17 years underground is called the “Blood X Cicadas.”

While underground, these insects suck sustenance from tree roots and the like. Once the temperature in early spring hits 18 degrees Celsius they emerge to live out the last short phase of their lives in the sun. But why does this only happen once every 17 years?



Some estimations suggest that they emerge from their burrows in their trillions, incredibly within a few weeks of each other. This phenomenon was first witnessed in the US in 1634 by the Puritan immigrants of Massachusetts. Not knowing any better, they likened the event to the pestilence referred to in the Old Testament – “locusts.”

Unlike locusts, however, cicadas are totally harmless to the environment – apart from the males making a lot of noise, that is.

But *why*? Why do they wait so long before venturing out of their isolated, underground burrows to frantically find a mate, reproduce and then quickly die?

Scientists have considered several theories in an attempt to explain this phenomenon. One theory suggests that cicadas have an innate grasp of math ...sort of. You see, 13 and 17 (the lengths of the periodical cicadas’ life cycles in years) are what are called “prime numbers” by mathematicians. These are numbers that can only be divided by themselves or by one. No other division is possible. So....

So, this means that when cicadas emerge in these prime year cycles, they rarely overlap with predator population cycles that occur at shorter intervals. For example, if cicadas were to emerge every 10 years, they'd be susceptible to predators that have population booms in cycles of one, two, five or 10 years. If they came out every 12 years, they'd be vulnerable to any predator on a cycle of one, two, three, four, six or 12 years. But 13 or 17 year cycles don't fit on most predator menus so easily.

The idea that these cicadas have worked out how to avoid predators by synchronizing their life cycles to prime number is, so far, only speculation. But if true... well, who was it that said “God must be a mathematician...”



## Net News

**NET LESSONS:** Too busy to come to CROSSROADS?

.... Try our *lessons on the net!*

For more on Prime Numbers in nature, check this site out:  
<https://www.bbc.com/news/magazine-14305667>

# Some Thoughts for the Month



**Joshua Says:** It's been said many times that "change is the only constant." To add to that sentiment, change is also exciting! "Exciting", that is, if you embrace change as a natural condition of life, and isn't life exciting? As you must all know by now, we're moving our school to a new location very near our present building. I have been working on the design of the interior and I think (hope) you are going to be pleased with the result – we'll see soon.....

**Junko Says:** From January 2022 after our holiday break, your lessons will be held in our new school building. Lessons will continue in our present location until the 30th of December. This means we will be staying open later than usual this year, so if you are on holidays in late December and have some free time, why not drop in for a coffee and a chat? We will be reopening in the new building (just around the corner) in the first week of January 2022.



**Marek Says:** When I lived in the UK, my idea of a mikan, a mandarin, was a very simple one: cheap, borderline tasteless and easy to peel, a poor man's version of an orange. Fast forward into 2 years of living in Ehime and it is no longer so cut and dry. I have "graduated" and now I'm looking forward to eating delicious HAREHIME and PONKAN, and later BLOOD ORANGES. I cannot wait!

**Mandey dit:** Le beaujolais nouveau est arrivé!! Chaque année, le troisième jeudi du mois, c'est la sortie officielle et internationale du Beaujolais Nouveau. Saviez-vous que le Japon est le premier pays du monde à pouvoir le déguster??? En effet, le Japon est le pays le plus à l'Est du Monde. Mais cette année, la récolte du raisin a été très mauvaise. C'est triste. Il a gelé et 70% des récoltes sont mortes. Cette année sera un mauvais millésime mais je vais quand même acheter plusieurs bouteilles afin de soutenir les producteurs. On appelle le mauvais vin \*la piquette\* parce que "aïe, ça pique!"



## ACROSS

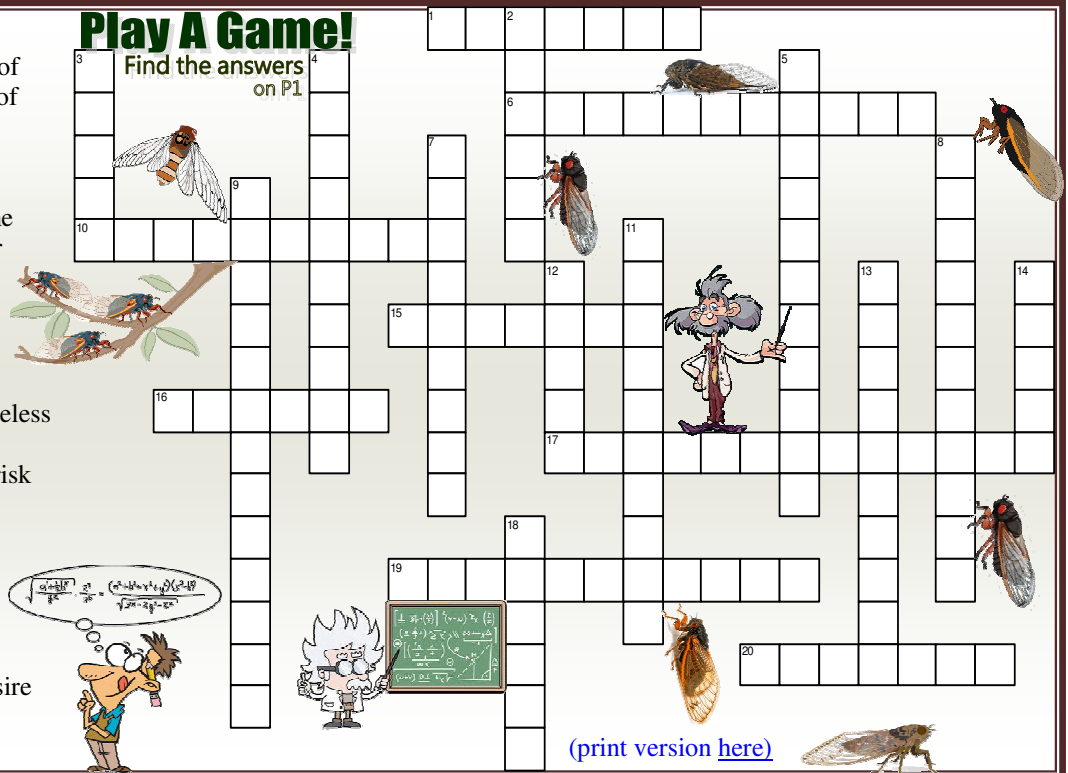
- 1 extend over or cover part of
- 6 approximate calculations of
- 10 a remarkable happening
- 15 holes made by animals
- 16 very short or little
- 17 happening at the same time
- 19 in an uncontrolled manner
- 20 described as similar

## DOWN

- 2 come to the surface
- 3 get the meaning
- 4 in a weak position, defenseless
- 5 a period of inactivity
- 7 going forward despite of risk
- 8 at risk
- 9 in a relative manner
- 11 what needs to be eaten to maintain life
- 12 grow vigorously
- 13 an epidemic disease
- 14 a brief indulgence of a desire
- 18 natural or instinctive, not conditioned by learning

## Play A Game!

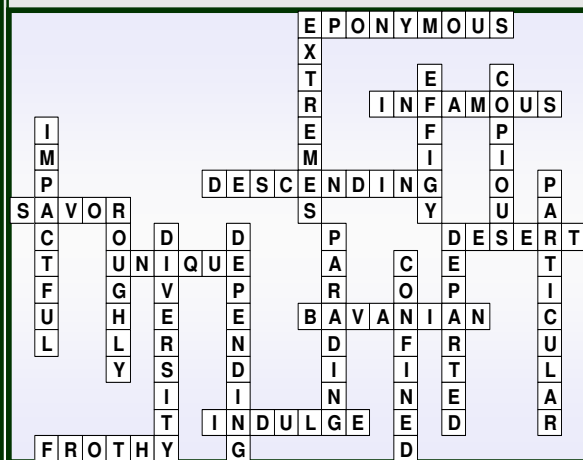
Find the answers on P1



(print version [here](#))

Homophones cause a lot of trouble for writers (especially for bad spellers...). They are words that have the same sound but are spelt differently and have different meanings. See if you can select the correct word in the following sentences.

1. She put on some soothing music to (lessen or lesson) the stress in the office.
2. He was booked into the hotel's most expensive (sweet or suit) during the conference.
3. He was (board or bored) so left the party early.
4. The speaker became (horse or hoarse) after speaking for more than 2 hours.
5. The leaders of both countries have been discussing a (peace or piece) agreement.
6. The actor missed his (cue or queue) and the audience began to laugh.
7. You aren't (allowed or aloud) to smoke in the office.
8. I can't decide (weather or whether) to go to Hawaii or Okinawa on my holiday.
9. The (road or rode) to Damascus is very long.
10. The (hair or hare) ran too fast for the fox to catch it.



## Last Month's puzzle Solution

### ACROSS

- 1 relating to a name derived from a person
- 4 famous for the wrong reasons
- 6 coming or moving downward
- 8 enjoy the taste of
- 13 leave behind, abandon
- 14 distinct
- 16 from a state in southern Germany
- 17 enjoy to excess
- 18 emitting or filled with bubbles

### DOWN

- 1 furthest or highest degree
- 2 a representation of a person
- 3 large in number or quantity
- 5 having a large or significant effect
- 7 unique or specific
- 9 approximately
- 10 having many or various aspects
- 11 determined by conditions
- 12 walking in a manner to attract attention
- 13 someone who is no longer alive
- 15 restricted in scope or area



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See our notice board, or ask Junko in our office, for the details.