



STEC@UKZN

"Lock Down"

DEAR FAMILIES

Welcome to the fifth issue of the STEC@UKZN "Lock Down". Missed the first issues. Find them at http://www.stec.ukzn.ac.za/lockdown_activities.aspx

Join us this Thursday for our "live" workshop on "Explore the exciting world of matter"! For more information or to register contact us via email on: stec@ukzn.ac.za

WHAT ANIMAL AM I?

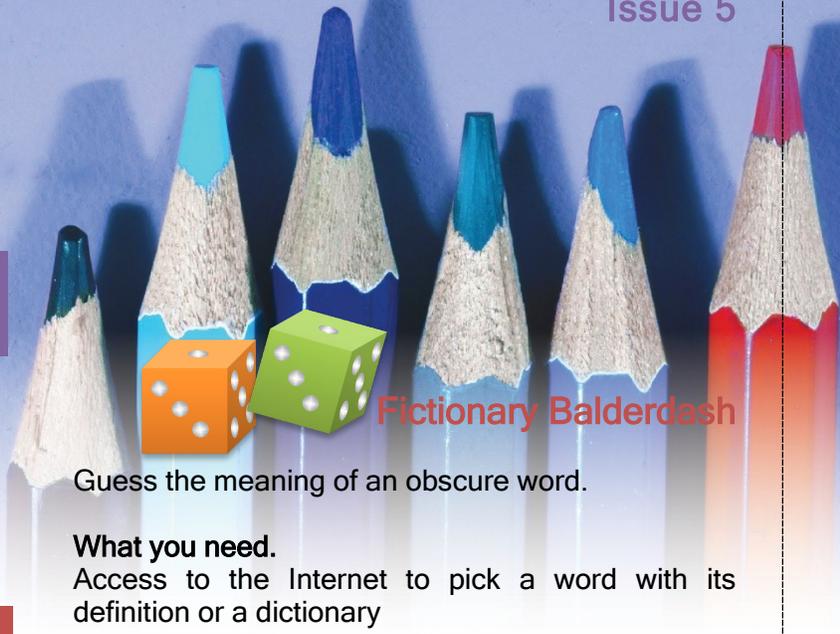


I have six legs.
I appeared even before the dinosaurs, around 300 million years ago.
I can tolerate a wide range of environments from Arctic to tropical heat.
I can hold my breath for over 40 minutes.
I can live a week without my head.
The Spanish folk song "La cucaracha" is about me.
I am considered food in many places around the world.
You would probably consider me as a pest.
My Madagascan family makes hissing noises.



WHAT FRUIT OR VEGGIE AM I?

I am part of the rose family.
I grow on trees.
My colours are mostly red, green, yellow or pink.
There are more than 7500 varieties of my kind.
I can float in water because 25% of me is air.
The phobia of eating me is known as Malusdomesticaphobia.
You might have seen me on some cell phones or computers.
I even helped Isaac Newton with his law on gravity.



Fictionary Balderdash

Guess the meaning of an obscure word.

What you need.

Access to the Internet to pick a word with its definition or a dictionary
scrap paper and pen/ pencils

How to Play:

- One person the Picker selects a word from <https://www.wordnik.com/lists/balderdash-game-words> that no one in the group knows. This person pronounces the word and looks up its definition without telling the rest of the group.
- Each person creates a possible, believable definition for the word while the Picker writes down the actual definition, (using the same kind of paper).
- Players give their invented definitions to the Picker. She/he mixes them up, placing the actual definition within the stack of the other papers, and then reads aloud all of the definitions as the players listen for the one that is most convincing.
- Each player votes for the one that she/he believes is the real one.
- Scoring is as follows: A person gets one point for each vote received by her/his definition.
- Any player who guesses the actual definition gets two points.

Example: Suppose the Picker chooses the word "ukase". Which of the following is the real definition?

- A leather carrier for a musical instrument
- An edict of a czar
- A tropical plant that yields a substance used in the manufacture of rubber
- A soft, white Scandinavian cheese.

The correct answer is B. Each person who voted for B would get two points. Individuals who wrote the other definitions would receive a point for each vote cast for their definition

Adapted from :

http://mail.watg.org/attachments/File/Dictionary_Game.pdf



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MATHEMATICS CHALLENGE



$$\text{😎} + \text{😎} - \text{😷} = \text{😘}$$

$$3 \times \text{😘} = 33$$

$$\text{😘} - \text{❤️} = 7$$

$$\text{😎} - 3 = \text{❤️}$$

$$\text{😷} = ?$$

Source: <https://mashupmath.com/blog/2017/1/7/are-you-ready-for-17-awesome-new-math-challenges>



“ESSENTIAL GOODS” EXPERIMENT

Invisible Coca Cola or the “Brown Cow” experiment

You will need:

- A small bottle of Coca Cola (500 ml)
- Some milk (low fat or full cream)
- Patience

What to Do:

1. Remove the label to see all the chemical and physical action in the bottle. With a pair of scissors cut into the label and tear it off.
2. Carefully open the bottle and pour the milk almost to the top of the bottle.
3. Put the bottle cap back on and screw it on tightly.
4. Very gently rotate the bottle to mix things inside a little but it's not essential.



Participate and Win

*“THINGS THAT I WANT TO DO
AFTER THE LOCKDOWN”*

For more information visit www.stec.ukzn.ac.za
or e-mail us stec@ukzn.ac.za
Competition ends 31 May 2020

5. Let the bottle sit undisturbed in a quiet place and keep track of what's going on inside the bottle.
6. You can check every 15 minutes and maybe document it by taking a photo. The longer you wait, the more distinct the differences you'll see. It will take a few hours..

What's Happening?

Have you ever seen what happens when you put drops of vinegar into milk? The milk is curdled by the acid content of vinegar (acetic acid) and we get a solid (a precipitate). You might know that Coke is slightly acidic, because it contains phosphoric acid and milk contains calcium and something that are called proteins. The phosphoric acid unfolds the proteins (a process called denaturing) and curdles the milk into little clumps just like the vinegar does. The phosphoric acid also reacts with the calcium in your milk and forms a solid called calcium phosphate. Both the curdled milk and the solid calcium phosphate sink to the bottom. Whatever is left of the milk coke mixture floats to the top, being lighter than the denser clumps at the bottom. Those clumps also take most of the caramel colouring with it.

Adapted from:

<https://www.stevespanglerscience.com/lab/experiments/invisible-soda/>

[https://en.wikipedia.org/wiki/Denaturation_\(biochemistry\)](https://en.wikipedia.org/wiki/Denaturation_(biochemistry)).

Special thanks to Prof. van Heerden for the explanation

Solution:

What animal am I: Cockroach

What fruit or veggie am I: Apple

Mathematics Challenge:

$$\text{😎} = 7 \quad \text{😘} = 11 \quad \text{❤️} = 4 \quad \text{😷} = 3$$