



STEC@UKZN

"Lock Down"

DEAR FAMILIES

Welcome to the eighth 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 "CSI@Fake Town University". For more information or to register contact us via email on: stec@ukzn.ac.za

WHAT ANIMAL AM I?



I have 4 legs.
I am a plant eater (herbivore).
Compared to my size, my brain is small.
You can only find me in Southern Asia and Africa.
I usually weigh over 1000 kg.
My name means "nose horned".
My horns are made of keratin, the same type of protein that makes up your hair and fingernails.
A wood and gold model of me was made in the medieval Kingdom of Mapungubwe.
I am one of the big 5.
You can see me on the old R10 bank note.



WHAT FRUIT OR VEGGIE AM I?

I am a leafy flowering plant.
I am 91% water.
I most likely originated in Persia (Iran) about 2 000 years ago.
I can grow as tall as 30 cm.
People say that I am very healthy, as I contain lots of nutrients and antioxidants.
In the cartoon world, Popeye the sailor gets his incredible strength from me.
I am one of the favourite vegetable dishes in South African restaurants.
Did I tell you that I am green?



Connect Four

The aim of the game is to have 4 of your signs (either X or O) in a row (whether vertically, horizontally or diagonally).

What you need.

- Paper and pen/pencils for each player

How to Play:

- Draw a 7x6 grid on a sheet of paper. 7 is the base of your grid.
- Select if you are playing X or O.
- The X or O cannot be put anywhere. The columns should be filled only from bottom to top. The players take turns to play the game.
- Once the first row in a column is occupied, you have to place your symbol in the second row. (Keep the rule in mind that you must place a piece "on top" of other pieces, just as if you had dropped them into one of the slots in the board game.

Example: O wins

		X	O			
		O	O	O	X	
		X	X	O	O	
		X	O	X	O	O
	O	X	X	X	O	X

Adapted from: <https://www.instructables.com/id/How-to-play-connect-four/>



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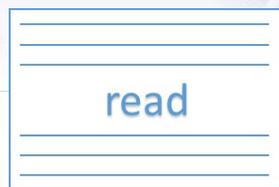
"Lock Down"

BRAIN CHALLENGE

Rebus puzzles use pictures, symbols, and letters to represent a word or words. Can you find the following words?



A.



B.



C.



D.

Source: <https://www.slideshare.net/roadtogrammar/rebus-puzzles-50697988>



"ESSENTIAL GOODS" EXPERIMENT

Roto Copter

The challenge

To design a roto copter which stays in the air for a longer time. You can for example measure the time the roto copter takes when it is dropped from a height of 2 metres until the time it hits the floor.

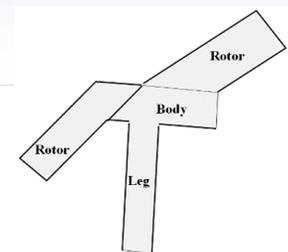
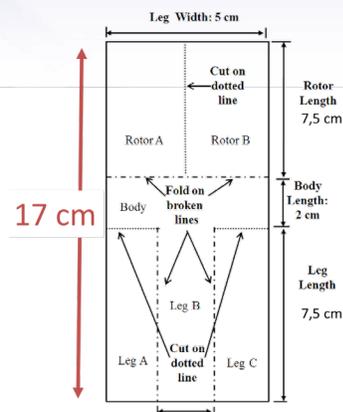
You will need:

- Paper (at least 17 cm x 5 cm)
- Scissors
- Paper clips (optional)

What to Do:

1. Cut a piece of paper 5 cm wide and 17 cm long (rotor length, plus leg length, and 2 cm body).
2. Cut dotted lines at Leg A and Leg C. The length of each cut is about 1,7 cm (about one third of the leg width 5 cm).

3. Fold leg A onto leg B, and leg C onto leg B.
4. Fold rotor A and rotor B in opposite directions. They should form 90° to the body and be 180° away from each other.
5. Hold your roto copter as high in the air as you can. Now, drop it.



What happens when you drop your roto copter? What happens when you add paper clips to your design?

What's Happening?

When the Roto-Copter falls, air pushes up against the blades, bending them up just a little. When air pushes upward on the slanted blade, some of that thrust becomes a sideways, or horizontal, push. Because we have two blades, each is getting the same push, but in opposite directions. The two opposing thrusts work together to cause the roto copter to spin. Notice in which direction the rotors spin. Now bend the blades in the opposite direction - if blade A was bent toward you and blade B was bent away, bend B toward you and A away. *What happens now if you drop the copter again? Do the blades spin in the same direction?*

Adapted from: https://www.exploratorium.edu/science_explorer/roto-copter.html and <https://www.minitab.com/en-us/Published-Articles/Teaching-DoE-with-Paper-Helicopters-and-Minitab/>

Solution:

What animal am I: Rhinoceros
What fruit or veggie am I: Spinach
Brain Challenge: A. coffee break, B. read between the lines, C. First Aid, D. long overdue