



STEC@UKZN

"Lock Down"

DEAR FAMILIES

Welcome to the thirteenth issue of the STEC@UKZN "Lock Down". Missed the first issues? Go to

http://www.stec.ukzn.ac.za/lockdown_activities.aspx

Join us this Thursday for our "live" workshop on "Things that fly 2 - Into space". For more information or to register contact us via email on: stec@ukzn.ac.za



WHAT ANIMAL AM I?

I have 4 legs.
I live in sub-Saharan Africa.
I eat roots, berries, bark, bulbs, grass and plants, but I also munch on dead animals, worms or bugs.
I am active during the day, and sleep at night in underground burrows.
I cope with high temperatures by wallowing in mud or water.
I have tusks.
People know me for my antenna-like tail.
I am one of the main characters in the "Lion King".

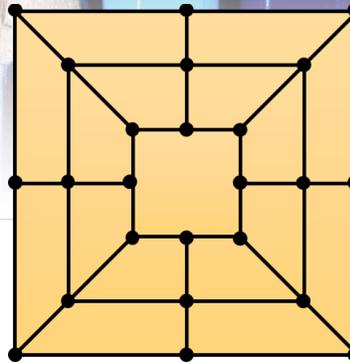


WHAT FRUIT OR VEGGIE AM I?

I am a fruit.
My yellow/ orange plum size fruit grows on the female trees.
My skin can be burnt and used as a replacement for coffee.
I am indigenous to the woodlands of Southern Africa, the Sudano-Sahelian range of West Africa, and Madagascar.
I have an extremely high vitamin C content.
My oil is used as an ingredient in some cosmetics.
I can be cooked to produce jam, juices and alcoholic beverages.



Morabaraba



You will need:

A play field as you see it on the left (you can draw it on a sheet of paper)
12 silver coins (light cows)
12 copper coins (dark cows)
(or light and dark dry beans, pebbles, bottle caps etc.)

There are three main phases to the game:

1. Placing the cows
2. Moving the cows
3. Flying the cows

Placing the cows

- The board is empty when the game begins. Each player has 12 pieces (cows); one player has light cows and the other has dark cows.
- The player with the dark cows moves first.
- Each turn consists of placing a cow on an empty intersection on the board.
- The aim is to create a "mill": a row of three cows on any line drawn on the board.
- If a player forms a mill, you can remove or "shoot" one of the opponent's cows. The shot cow is removed from the board and not placed again. You cannot shoot a cow in a mill unless all of the opponent's cows are in mills, in which case you can shoot any cow.
- Even if a move creates more than one mill, only one cow can be shot in a single move.

Moving the cows

- After all the cows have been placed, each turn consists of moving a cow to an empty adjacent intersection.
- Again, completing a mill allows a player to shoot one of the opponent's cows.
- Players are allowed to "break" their own mills.



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- A mill may be broken and remade repeatedly by shuffling cows back and forth. Each time the mill is remade, one of the opponent's cows is shot.
- A mill which is broken to form a new mill cannot be formed again on the next move.

Flying the cows

- When a player has only three cows remaining, desperate measures are called for. This player's cows are allowed to "fly" to any empty intersection, not just adjacent ones.
- If one player has three cows and the other player has more than three cows, only the player with three cows is allowed to fly.

Finishing the game

- You win if one opponent has just two cows or if there are no moves.
- If either player has only three cows and neither player shoots a cow within ten moves, the game is drawn.

Source: <https://en.wikipedia.org/wiki/Morabaraba>

MATHEMATICS CHALLENGE



Can you crack the password?

A man locked his computer with a password and wrote down a hint:

- 4 Grapes
- 1 Apple
- 7 Bananas
- 7 Mangoes
- 2 Pineapples
- 1 Orange
- 8 Pomegranates



Source: <https://thinkwitty.com/2018/07/crack-the-computer-password-riddle.html>



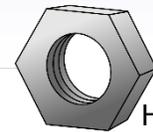
"ESSENTIAL GOODS" EXPERIMENT

Screaming Balloon

Did you know that balloons can scream?

You will need:

- A balloon
- A coin
- A hex nut



Hex nut

What to Do:

1. Push the hex nut through the open end of the balloon. Make sure that the hex nut goes all the way into the balloon.
2. Blow up the balloon, but don't blow it up to much, as the balloon will easily burst. Tie the end of the balloon and off you go.
3. Grip the balloon at the tied end as you would a ball. The neck of the balloon will be in your palm and your fingers and thumb will extend down the sides of the balloon.
4. While holding the balloon palm down, start rotating or swirling it in a circular motion. The hex nut may bounce around at first, but it will soon begin to roll around the inside of the balloon.
5. Can you hear anything??? What happens if you replace the hex nut with a coin?

What's Happening?

The rotation and the shape of the balloon makes the hex nut move in a circular path. Our hex nut has six sides, and these flat edges causes the hex nut to bounce or vibrate inside the balloon. The screaming sound is made by the sides of the hex nut vibrating against the inside wall of the balloon.

Adapted from:

<https://www.stevespanglerscience.com/lab/experiments/screaming-balloon/>

Solution:

What animal am I: Warthog

What fruit or veggie am I: Marula

Mathematics Challenge: Password is Passion :
Grapes, Apple, Bananas, Mangoes, Pineapples,
Orange, Pomegranates.