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KWAZULU-NATAL™  
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Issue 2



STEC@UKZN

"Lock Down"



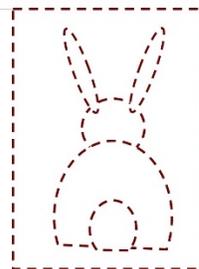
Don't get Locked Up

## DEAR FAMILIES

Welcome to the second issue of the Stec@UKZN "Lock Down". We hope that you enjoyed the first issue and had a great time with all the activities.

Locked Up is a paper and pen game for two (or more) players and is based on the classic *Hangman* game.

### How to play



One player (the "farmer") thinks of a secret word; while the other player or players (the "bunny") tries to guess the secret word. The "farmer" draws a number of dashes equivalent to the number of letters in the word (Important: you need to know how to spell the word!). If the guessing player suggests a letter

that occurs in the word, the other player fills in the blanks with that letter in the right places.

If the word does not contain the suggested letter, the "farmer" draws one element of the locked up bunny. As the game continues, a segment of the locked up bunny is added for every suggested letter that is not in the word. The "farmer" keeps track of the suggested letters, by writing down the wrong guesses. If the bunny guesses the word in under 9 guesses it wins and can now become the farmer.

Example: Guessing the word POTATO.

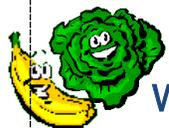
*Do you have any questions or comments?  
Need any help with the experiments?  
Contact us via email on: [stec@ukzn.ac.za](mailto:stec@ukzn.ac.za)*

## WHAT ANIMAL AM I?



I have four legs.  
My favourite food are the leaves and buds of an acacia tree.  
I eat a lot but don't drink much water.  
I am the tallest animal on Earth.  
I have two horns.  
My tongue is about 45 cm long and purplish black.  
I live in the African savannah.  
Just like a human I have seven neck vertebrae, but my neck is much longer.  
My heart beats about 150 times per minute.

Word:	POTATO		
Guess:	H	I	E
Wrong Guess		H	I, H
	N	R	S
	I, H, E	I, H, E, N	I, H, E, N, R
			D
			I, H, E, N, R, S



## WHAT FRUIT OR VEGGIE AM I?

I am a root vegetable.  
I am usually light brown or yellowish on the outside, but turn green when the sun shines on me.  
People used me for almost 7 000 years.  
You can fry, boil, mash or bake me.  
I contain lots of starch.  
I am among the most environmentally friendly vegetables.  
You probably best know me as a crunchy snack.  
In 1995 I even became an astronaut. I was the first food ever grown in space.



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“Lock Down”



**What to do:**

1. Mix the flour, salt, cream of tartar and oil in a large mixing bowl.
2. Add a few drops of food colouring into the boiling water (adult supervision might be necessary when handling the hot water).
3. Add the liquid into the dry ingredients.
4. Use a spoon to stir continuously until it becomes a sticky, combined dough.
5. Allow it to cool down for about five minutes.
6. Take it out of the bowl and knead it vigorously for a couple of minutes until all of the stickiness has gone. Important: Keep kneading until it's the perfect consistency!

T	T T	T T	T A T
I, H, E, N, R, S, D	I, H, E, N, R, S, D	I, H, E, N, R, S, D, U	I, H, E, N, R, S, D, U

T A T
I, H, E, N, R, S, D, U

**MATHEMATICS CHALLENGE**

Solve the puzzle to the right.

Put the numbers 1,2,3,4,5,6 into the circles of the triangle. You can only use a number once. Each side of the triangle should add up to 9. Can you also arrange the numbers in the triangle so that they add up to 10, 11 and 12?



1 2 3 4 5 6



**What's Happening?**

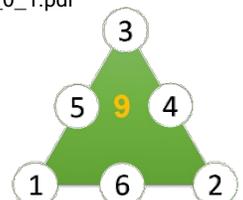
When we are mixing the salt, cream of tartar and flour together we make a 'mixture'. In chemistry, this is when substances are physically combined but no reaction has taken place.

When we mix the two liquids, water and food colouring together, we call the result a 'solution'. By putting all the ingredients for the play dough together and kneading them, we started chemical reactions that changed the appearance of our starting dry and liquid ingredients.

Adding water to the flour allows long chain like molecules in the flour (called proteins) to stick together. This helps to hold the water in place and keep the dough together. Salt helps in this process by letting the proteins stick together more strongly. Together with cream of tartar it helps to preserve the dough. Cream of tartar also gives the playdough a stiffer, more stretchy texture. The oil coats the other ingredients and keeps the play dough from drying out. The food colour of course gives the play dough its colour.

Adapted from: the imagination tree & the Royal Society of Chemistry.  
<https://theimaginationtree.com/best-ever-no-cook-play-dough-recipe/>  
[https://www.rigb.org/docs/playdough\\_infosheet\\_0\\_1.pdf](https://www.rigb.org/docs/playdough_infosheet_0_1.pdf)

Solution:  
What animal am I: Giraffe  
What fruit or veggie am I: Potato  
Mathematics Challenge:



**“ESSENTIAL GOODS”  
EXPERIMENT**

**Making Play Dough**

**You will need:**

- 1 cup flour
- 1 tablespoon vegetable oil
- 1/4 cup salt
- 1 teaspoon cream of tartar
- 0.5 cup boiling water (add in increments until it feels just right)
- Food colouring