

Teacher's Notes

Doctor Peter's Good Earth Magic

By Kinsa Hays

BACKGROUND

The fairies and elves in this story stand for farmers and growers struggling to understand why their animals and crops are under-performing despite the money and care they plough into the land and herd. The current method – 'putting enough fertiliser on should do the trick' – i.e. the sufficiency concept just isn't working.

Challenged to show humans how to replenish soil by rebalancing it as nature intended the elves are directed to Peter Lester (also known as 'Doctor Dirt.'). He has the answer: use the best mineral combination for each soil type or crop.

This kindly soil scientist shares with the fairies his expertise in soil, plant and animal nutrition. He is paid with gold dug by the dwarves from the Waihi hills. Doctor Peter must battle the traditional methods of fertiliser application espoused by fertiliser companies and the sceptical - in this case, *B.Warewolf*, the magician.

ABOUT PETER LESTER

Why is he able to produce such spectacular results? This is explained on the Quantum Laboratories website. (Go to <http://www.quantumlabs.co.nz/faq.htm>.)

Q: What are the advantages of 'balancing' soil nutrients over the present 'sufficiency' methods where ratios are not considered?

A: Throughout Nature's realms she has selected specific plants that grow on specific soils under specific soil conditions. We have introduced plants into an environment where they would not have normally grown, or else they would have already been here.

If we take a man to the moon we take his environment with him. When we duplicate as near as practicable those sets of conditions found in the country of origin, we have fewer metabolic problems with the plant, the animal and man.

At present the planet is in panic mode where we have health issues and we are throwing money at the drug companies and medical profession with reckless abandon; the ambulance at the bottom of the cliff scenario. We are turning a blind eye to the very basis of all nutrition, the soils on which all foods/feeds depend.

We leave this to the fertiliser companies who have one target in mind: increased profits. If we don't wake up soon we will all be pushing up daisies.

Unfortunately, nitrate poisoning that is so rife, decreases the oxygen carrying capacity of our blood, or more correctly, its ability to supply oxygen to cells. The net result is an increase in lethargy. We just don't care anymore.

USING THE BOOK IN THE CLASSROOM

Doctor Peter's Good Earth Magic & The Science Curriculum

The subject of soil overlaps each of the strands in the curriculum. This is where the story fits in with the learning objectives:

LIVING WORLD strand

- Understanding how living things interact with each other and the non-living environment (*i.e. soil status, the plants and animal nutrition.*)
- Understanding life processes. (*i.e. life cycle of a grass grub, ragwort or California thistle.*)

PLANET EARTH strand

- Understand the subsystem of land and soil differences (*i.e. how different plants like different places; soil testing; providing them with what works best for them.*)
- We are guardians of our finite resources (*i.e. the fairies taking responsibility to do something.*)
- Understanding human impact on the soil, both positive and negative (*i.e. balancing soil, cf. sufficiency concept.*)
- Understand the interaction of soil and plant and make informed decisions (*i.e. what did the cows choose; how did Doctor Peter know what minerals to choose to balance the soil.*)

PHYSICAL WORLD strand

- Understanding the physical phenomena of balancing the soil (*i.e. applied nutrition.*)
- Understanding how it affected Farmer Gerry's farm and what might happen next.

MATERIAL WORLD strand

- Understanding the role of chemistry in the world (*i.e. the example set for the fairies and elves to emulate; how being open to new ideas might change their farming/growing patterns.*)

SUGGESTED ACTIVITIES BASED ON DOCTOR Peter's Good Earth Magic

LIVING WORLD strand

1. Investigate the life cycle of a grass grub <http://agpest.co.nz/pest-directory/#pests> and <http://www.pggwrightsonseeds.com/uploads/Forage%20Focus%20No%2014%20Grass%20Grub.pdf> which details the three stages.
2. Images of grass grub damage <https://www.google.co.nz/search?q=grass+grub+damage>
3. Investigate the life cycle of ragwort or California thistle <http://agpest.co.nz/pest-directory/#weeds>.
4. Discuss what you might do to get the best from the soil to grow :
 - Pasture for the farm that has a ragwort problem.
 - Grassy lawns around the home with patches of brown.
 - Vegetables for a kitchen garden over-run by bugs.
 - What to do when your flowers for the market aren't producing the best blossoms.

PLANET EARTH AND BEYOND strand

1. Discuss how Doctor Peter Lester's method balances the soil the way Nature intended it.
2. If we are kaitiaki – guardians of the land – how best should we look after it? (Think of how a medical doctor looks after your body when you aren't well.)
3. Make a chart of ways in which humans can affect the land, both positively and negatively. What happens to the land and soil in each case?
4. In the story, what was the interaction between the soil, the plants and the cows? What happens to your body when you make healthy choices?
5. Experiment growing plants in different soil types eg. clay, sandy soil, loam. Record the results.

PHYSICAL WORLD strand

1. Doctor Peter Lester is an expert in Applied Nutrition. What is this and what does it mean in regards to soil? (One definition is that it is a term to emphasize the role that diet has in promoting health and as a therapy.)
2. Here's a website that clarifies applied nutrition in easy-read terms but related to Third World countries; this could be extrapolated to soil. http://www.nutrition-ntw.org/index.php?cat_ID=7 . What happens to people when they are under-nourished? What might happen when our soil is under-nourished?
3. In the story, what was the effect on Farmer Gerry when he saw the results of balancing the mineral nourishment of the soil?

MATERIAL WORLD strand

1. What is a laboratory? For a quick tour, visit Quantum Laboratories at http://www.quantumlabs.co.nz/the_facility.htm
2. How do you take a soil sample?
3. Sketch an imaginary farm that has flat land, hills and a swamp. Indicate with a cross where you would take soil samples to send to a Laboratory.
4. Why wouldn't you take a soil sample near a gate?
5. Quantum Laboratories test mineral contents of the soil (and other things). Write these mineral names and symbols separately on cards and create a card game with them:

S Sulphur	P Phosphorus
Ca Calcium	Mg Magnesium
K Potassium	B Boron
Fe Iron	Mn Manganese
Cu Copper	Zn Zinc
Co Cobalt	

(Additional resource: <http://education.jlab.org/itselemental/tableofelementsc.pdf>)

WHERE TO BUY *Doctor Peter's Good Earth Magic*

You can buy the book from Wheelers Books, Total Library Solutions, Academy Books and selected bookshops or email kinsa.hays@gmail.com.

ABOUT THE AUTHOR

When Kinsa Hays won national and international awards for a short story, it unleashed several years' worth of writings in her laptop. *Doctor Peter's Good Earth Magic* is her debut published work. It was written when she was living in Katikati and discovered a toadstool lane in the avocado orchard next door. Kinsa cares deeply about environmental issues.

Go to www.kinsahaysblog.wordpress.com