DARLINGTON COLLEGE OF TECHNOLOGY

Russian Dolls Investigation
Teacher's Notes

Objectives

- *Measure efficiently and accurately using metric units.*
- *Present your results in a suitable format*
- *Identify certain relationships between sets of measurements.*

Main curriculum elements covered

Whole Numbers
- N1/L1.7 work out simple ratio and proportion
- N1/L2.3 calculate ratio and direct proportion

Data and statistical measures
- HD1/L1.2 collect, organise and represent discrete data in tables, charts, diagrams and line graphs
- HD1/L2.2 collect, organise and represent discrete and continuous data

Measure, shape and space
- MSS1/L1.4 read, estimate, measure and compare length, weight, capacity and temperature using common units and instruments
- MSS1/L2.3 estimate, measure and compare length, distance, weight and capacity using metric, and where appropriate, imperial units
- MSS1/L2.7 understand and use given formulae for finding perimeters and areas of regular shapes (e.g. rectangular and circular surfaces)

Di Mellor (details below), the contributor, says:

"This is a variation on the 'wind bits of string around circular objects to find pi' theme. I had my Level 1 learners measuring all the heights, to see if they were in proportion, and then they drew graphs of their choice – they were nearly in proportion – and others measured height and width and this was always in the ratio 2:1.

The Level 2 learners measured circumference and diameter and of course came up with pi. It was really tricky measuring the tiny dolls, and we had sets of Father Christmases and seals as well as the traditional ones.

Entry level learners can join in too – for example, E1 learners can stick bits of string on paper to make a 'feely' graph.

All good fun."

Russian Dolls Investigation

Sets of nested Russian dolls have become an icon, but in fact they have only been made in Russia for about 100 years. They are thought to have originated in Japan, but the dolls are now associated with certain cities and areas of Russia, and, dressed in traditional folk costumes, they symbolise Russian peasant women. Their name, Matryoshka, means 'mother', and the largest doll in the set protects the dolls nested inside.

The dolls can come in sets of any number, and although five dolls are common, sets of as many as forty dolls, measuring over a metre high, have been made. In recent years, figures of famous and infamous people have been made, including a set of dolls looking like former President Gorbachev and sets of Father Christmas dolls. Dolls also found include animals, like cats and dogs and other domestic animals, as well as wild animals like seals and bears.

The sizes of the dolls have to be precisely calculated, so they will nest, and your task today involves measuring a set of dolls.

TASK

With a partner, measure a set of Russian dolls. Measure them using the metric system, but decide:

- What you will use to measure with.
- What units you will measure in.
- What part(s) of the dolls you will measure.
- Which dolls you will measure, and who will measure what.
- How to record your measurements.
- How to present your results.
- Which dolls to compare – the ones in your set or all the sets in the room?

Discuss things with your partner, and with your teacher if you need to, but remember you are looking for relationships and patterns, so that may help you make some of your decisions.

OUTCOMES

By the end of the lesson, you should be able to:

- Measure efficiently and accurately using metric units. MSS1/L1.4, MSS1/L2.3
- Present your results in a suitable format. HD1/L1.2, HD1/L2.2
- Identify certain relationships between sets of measurements. N1/L1.7, N1/L2.3, MSS1/L2.7