A PLACE FOR ZERO

**FS/KS1/LowerKS2/UpperKS2
Framework Links A/B/C/D/E**

Synopsis

"Sometimes you have to take risks to really count."

Zero is all alone in the land of Digitaria. He can't play Addemup with the other numbers, because he has nothing to add. Join Zero as he goes on a journey to discover his place. His quest takes him to the mysterious workshop of Count Infinity to the palace of King Multiplus, where Zero meets a stranger who looks surprisingly familiar.

Themes
- Using and applying
- Counting and understanding number
- Knowing and using number facts
- Calculating
- Understanding shape
- Measuring
- Handling data

Suggested activities/Key questions

"Every number knew its place" (p.5)
- 7 is the number of days in a week. What can you think of for each of the numbers 1–9?
- Can you use Numicon to show how Count Infinity can use 1s to make other numbers?

- What do you think Zero's place might be? Can you think of a reason for zero?
- If I put two digits in the Numberator and 7 pops out of the spout, what digits could I have put in? What if I put in more than two digits?
- What if 9 pops out? How many different combinations of numbers can you think of? What is the biggest amount of numbers Count Infinity could have put in the Numberator to make 9?
- Can you think of two numbers which could go into the Numberator to make 1?
- Count Infinity thinks that if 0 and any other number go into the Numberator the same number will always come out. Is he correct?

"I am asking the king to multiply me" (p.17)
- What do you think will happen when the king multiplies Zero? Can you explain your thinking? What image can you use to support your explanation?
- What might happen when 0 and the 1 go into the Multi-tube?
- Is the king correct when he says "No matter what number we multiply you with, we get zero!"?
- What numbers could the king have put in the multi-tube if 24 came out of the other end? What about 36? What about 7?
- What can you say about factors and product? What are the factors of 36? How do you know you have found them all?
- The numbers pair up to make numbers bigger than 9. Use digit cards to create 2 digit numbers. Can you represent this number with the base 10? How many 10s and 1s are in the number? (e.g. there are 37 ones in 37.) Can you order a selection of numbers?
- What is the largest number that the numbers 1–9 can make in pairs?
- How many 1s are needed to make 10? How many 1s are needed to make 100? How many 10s are needed to make 100? Use base 10 equipment to explore ten times bigger, and the relationship between 1, 10 and 100 (1 x 10 = 10, 1 x 100 = 100 etc).
- What numbers did King Multiplus put into the Multi-tube if 60/70/80/90 etc came out of the other end?

Suggested resources
Numicon
Base 10
Digit cards

Possible cross-curricular links