

Investigation:

SEEKING HONESTY IN NUMBERS

An *honest number* in a language is a number whose meaning is the same as the number of letters in the word for the number.

Ten represents 10 objects, but ten has 3 letters, so 10 is not honest.

Four represents 4 objects, and four has 4 letters.



So, in the English language, 4 is an honest number.

EXAMPLE

Determine which number trails end in the honest number 4.

Choose a number.	1066
Write its number word.	one thousand sixty-six
Count and record the number of letters.	19
Write the number word for 19.	nineteen
Count and record the number of letters.	8
Write the number word for 8.	eight
Count and record the number of letters.	5
Write the number word for 5.	five
Count and record the number of letters.	4

If you continue, 4 and *four* keep repeating.

This number trail has five numbers and ends in 4.

1066 → 19 → 8 → 5 → 4

Find the number trails for:

- | | | | |
|---------------------------|---------------------------|--------|---------|
| 1. 63 | 2. 163 | 3. 999 | 4. 8999 |
| 5. any five-digit number | 6. any six-digit number | | |
| 7. any seven-digit number | 8. any eight-digit number | | |

With your class, produce a table or diagram that shows all possible number trails for the first 200 integers.