

PUT YOUR MIND IN AN ENVELOPE!

*This activity might be used during our show.
Please use it only after the performance!*

Math skills: Addition and Division

You will need: Paper, pencil and an envelope.

Difficulty level: 2

Introduction: Tell your students that you can read their minds!
After they choose a number and do a few math calculations,
they will find the very same result in a sealed envelope!

What to do: Write a number on a piece of paper without letting
the kids see it, fold it and put it in an envelope. Seal the envelope
and put it in an empty box or cubby (just for the effect!)

Ask one volunteer to choose a number with three digits that are
the same and to write it on the board without letting you see it.

Ask the volunteer to add the sum of the three digits together.

Ask him/her to divide the original number with the sum he got.

Now slowly open the envelope and everyone will be amazed
to realize that the exact same number was written there already!

How it works: All you have to do is to write the number 37, fold it and
put it in the Envelope. Any number that your class chooses will work!

If they took the number 555, when they add it they get $5+5+5=15$.
Divide 555 by $15=$ yes, it works 37 !!

Why it works: Let the three digit number chosen be AAA, i.e. the value of the base 10
number is $100A + 10A + A$. The sum of the integers is $A + A + A = 3A$.
The sum of the integer is divided into the original number,

$$\text{i.e. } \frac{100A + 10A + A}{3A} = \frac{111A}{3A} = \frac{111}{3} = 37$$

Note that for a 2 digit number the result will always be 5.5.
For a 4 digit number the result will always be 277.75.
For a 9 digit number the result will always be 123,456,789.

