

Magic Box, or The Function Table

Students in the early grades of elementary school can do this activity with arithmetic while learning the concept of function. It's a good introduction for older students also.

x and y functions are in two columns with a box at the top in the center. You start by entering a number for x , and then tell the students that this number goes into the box and comes out changed on the y side. Ask students what they think happened in the box to cause this change. It's good to start with an ambiguous change, such as 4 into 8, so that students will discover that there can be more than one correct answer (+4 or $\times 2$). Addition numbers entered on the x and y sides will help them to decide.

From there you can raise the level of math to what the students are learning. It makes an engaging game for students to guess each other's rules.

An additional task is to write the algebraic rule for any number: $n = ?$