

# WEEK ONE - Activity One - A Logic Problem

Activities in the first couple weeks need to draw the children in. Even (especially!) those who think they dislike math. We avoid computation, instead looking for activities that involve ambiguity, head-scratching patterns, puzzles and stories.

## ACTIVITY ONE

TEACHING LOGIC FIRST: (~15 minutes)

A puzzle has the ability to pull children into the subject of math. It appeals to a wide range of learners and can generate small feelings of success.

**PUZZLE:** For these 3 sentences, determine whether each is true or false. Talk to your group and make a decision. Be ready to report back to the class.

- Exactly ONE of these sentences is FALSE.
- Exactly TWO of these sentences are FALSE.
- Exactly THREE of these sentences are FALSE.

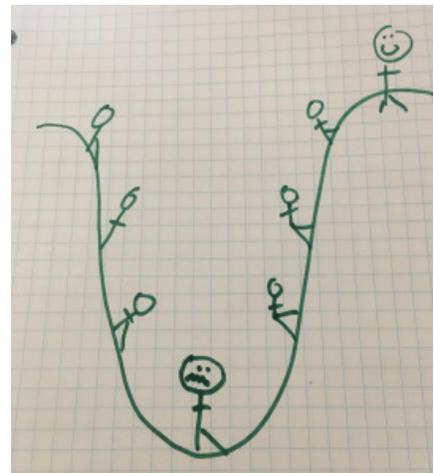
Let students discuss this. It's not as hard as it initially seems, but some students will need time to reflect and talk it through. Encourage the use of a pencil. I circulate with my mini white board, saying "It's confusing! Talk me through it while I write it down... What if #1 is true?" I nudge them to help me to write it out: If #1 is true then there is one more True. "Really? Why? .... Oh! 1 False, 2 Trues!" ... Does it work? Model the *talking* that helps get more clarity. Maybe someone will say you should start with #3, because it doesn't work. #3 can't be true if all 3 are false! Make a show of crossing out #3, then leave. Do this with one individual group, however, while the other groups are still discussing, *not* in front of the whole class as instruction.

Break the discussion halfway through and draw the "Pit of Confusion" on the board.

Say "I'm feeling confused! I'm in the pit of confusion. You know, that just happens when you're learning. :) Can any group help me talk this through?" Then circulate again with the white board and listen to students as they try to figure it out.

When it's solved (#2 is correct), talk about *feelings*.

How did it feel to be confused? How did it feel to figure it out? Stress that the pit of confusion is where LEARNING happens. That's where neurons are connecting, whether we actually *solve the problem or not*. Does talking help? Does writing it down help? What we're learning in math class is how to *think!*



Note to teachers: Don't build a gondola!

Resist the temptation to explain the solution to this problem to students. Traditionally, teachers have presented material for students to learn, much as if there were a "gondola" across the pit of confusion. Don't! Brain research shows that learning actually happens *IN* the pit, when when confusion is present. There are no shortcuts to thinking.

