

BATTERIES AND BOARDS ACTIVITIES (Page 1)

Engagement Activity:

Does anyone remember playing on the **teeter-totter** during school recess? Maybe it was called the **see-saw**?
Do you remember **how important** it was **to center the board**, so each side of the board was the **same length from center**?
Does anyone remember playing with **more than two** persons, where two were on one side and one was on the opposite side?

Have you ever been back to the playground as an adult and played on the teeter-totter with a child or small adult?
What did you have to do to the board? Did you move it off center?
How did you arrange the sitting positions of the players when one of the players was much bigger than the other player.
Let's take some time now & play with the homemade teeter-totter
Consider the batteries with string as players that hang from the teeter-totter instead of sitting on it.

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Exploration Activity:

Allow students to **investigate how to hang** the used batteries on the balance board so the board is in a balanced position.

Note there are only **(5)** used batteries and they should **all** be of the same type (carbon or alkaline) and be wrapped the same way.

Note there both large and small marks on the balance boards but there are **(no)** numbers so students can **construct** their own.

Mingle around the teams and encourage the students to try a variety! of situations such as: 1 at 40 = 2 at ?? 3 at 10 = 1 at ??

These **numeric examples** assume there are 50 marks on each side of Balance Beam. Allow any numbering system e.g. 5,25,50 on each side.

_____ To be checked off by instructor.

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Explanation & Elaboration Activity:

During these activities have the students **explain** their procedure as to how to position batteries on the board and to make it balance.

Have them compile a table of arrangements that **verify** their theory and/or hypothesis and to concretely show **supporting** evidence.

Maybe if **they have not** acquired a connection and/or relationship between battery positions and balancing of the board then suggest looking for a pattern among values in their table of arrangements.

If the students can explain and show evidence for their solution then have them **apply** their procedure to the following:

$$2 \text{ at } 30 = 3 \text{ at } ?? \qquad \text{or} \qquad 3 \text{ at } 10 = 2 \text{ at } ??$$

These examples assume 50 marks on each side of the board.

The numeric examples **might have to be changed** to fit their numbers.

_____ To be checked off by instructor.

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Evaluation Activity:

During this final phase of the learning cycle have the students **assess the strategy** they used to acquire a connection between the battery positions and a balanced board and their ability to **apply this strategy** to problem situations presented to them.

Encourage the students to critically **analyze** the balance board apparatus and the way the batteries were wrapped for any possible places where **errors and/or problems** might have been introduced into the operational procedure balancing.

Try to **encourage** the students to think of **real life situations** where counting from the middle is necessary, where placing objects on both sides is necessary to be fair and equal.

What have we learned from these Batteries & Boards activities?