

Balancing with Balloons



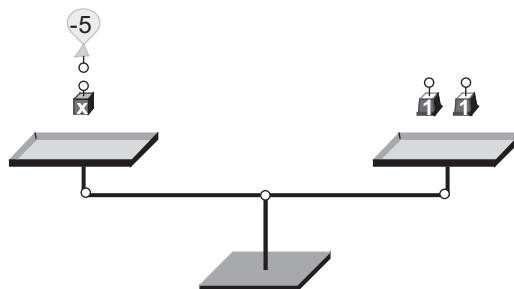
Name: _____

In this activity you'll use Sketchpad's balance model to solve equations that include negative numbers and negative variables, represented by balloons.

EXPLORE



1. Open **Balancing with Balloons.gsp** and go to page "A." Write the equation represented by the balance.



2. How can you isolate the x ? Explain and write the resulting solution.

3. Go to page "B." Solve this equation in two steps. After each step, the scale should balance. Record the balanced equations at each step.

Original equation:

After first step:

Solution:

4. Go to page "C." Solve this equation in two steps. After each step, the scale should balance. Record the balanced equations at each step.

Original equation:

After first step:

Solution:

5. How is the solution to equation C different from the solutions to equations A and B? What does this mean in terms of the model?

Balancing with Balloons

continued



6. Equations D, E, F, and G each require two or more steps. Use the balance to solve them and record your steps.

Equation D:

Equation E:

Equation F:

Equation G:

EXPLORE MORE

7. Go to page "Balance." Build your own equation by putting weights and balloons on each side of the balance. Add 1-weights and -1-balloons as necessary to balance the scale. Now solve your own equation, or challenge a classmate to solve it. When you're done, press *Change x-value* and repeat.
8. In the sketch the x -value is always a whole number. Write an equation whose solution is a fraction. Show the solution steps.
9. Go to page "Practice" and try solving equations without using the model. Check your work by pressing *Show Solution*, then press *New Equation* for more practice.