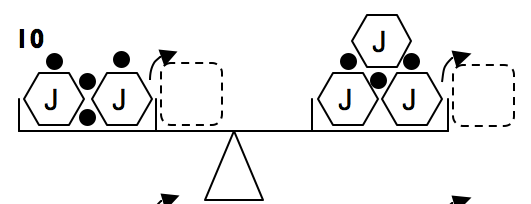
# Equations are Balance Problems

### Prerequisite Knowledge:

To solve balance problems

### Activities:



What would be the best first step to solve this balance problem?

1. Subtract J from both sides.
2. Subtract 2 J’s from both sides.
3. Subtract 2 blobs from both sides.
4. Add 3 blobs to both sides.

### Prerequisite:

To know how to use inverse pairs to simplify expressions

### Activities:

Write down and box pairs below which are inverse:

### Aim:

To understand that equations are just a neat way of writing balance problems.

To solve equations, showing what you have done to both sides.

### Activities:

Example in three ways.

1. Balance
2. <https://mathsbot.com/manipulatives/equationSolver>
3. Formal approach

Worksheet – Balance problems to equations

Key learning point:

perform the same operation to both sides of the equation.

Problem

Represent the solution to this equation in two different ways on your mini-whiteboard.

**Aim:**

To understand why inverse pairs help explain why we do what we do to each side of an equation

**Activities:**

Example

### Aim:

To abstract equations to involve negatives and fractions

### Activities:

Use <https://mathsbot.com/manipulatives/equationSolver> to represent these.

Example

Problem

Example

Problem

Example

Problem

Example

Problem

Example

Problem

Example

Problem

**On mini-whiteboards, summarise 4 key strategies which can help you to solve equations.**

Do the same thing to both sides.

Use inverse pairs.

Isolate the variable.

Get rid of negatives.

Practice Worksheet.

Desmos Activity – The smallest solution

<https://teacher.desmos.com/activitybuilder/custom/582615b63e43a0e4058569c6>

**Assessment:**

Solve the following equations

Extension: Expression polygons

James weighs 21kg less than his sister, who is 3 times his weight.

What values can you work out, and what are they?