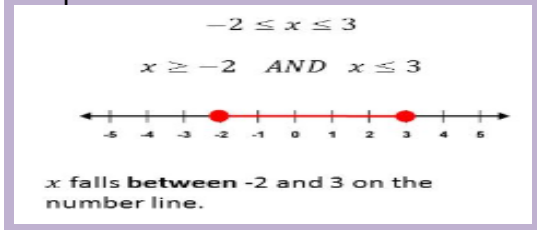
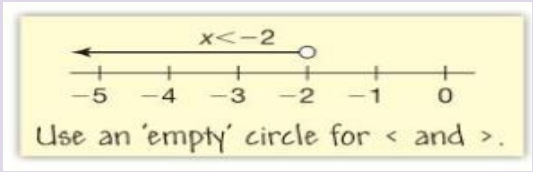
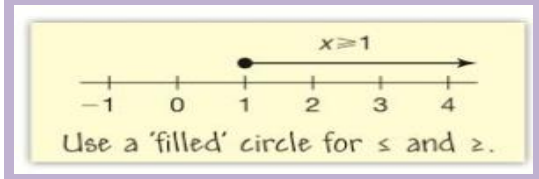
STAGE 9: UNIT 6 – Solving Equations & Inequalities

KEYWORDS AND DEFINITIONS

1	(Linear) inequality **looks exactly like a linear equation, with the inequality sign replacing the equality sign.**
2	Unknown A variable, or the quantity it represents, the value of which is to be discovered by solving an equation.
3	Manipulate Algebraic **manipulation** involves rearranging variables to make an algebraic expression better suit your needs. During this rearrangement, the value of the expression does not change.
4	Solve To find the answer or explanation for.
5	Solution Set A **solution set** is the **set** of values which satisfy a given **inequality**. It means, each and every value in the **solution set** will satisfy the **inequality** and no other value will satisfy the **inequality**. Example: Solve 2x + 3 ≤ 7, where x is a natural number. ***Solution:*** **2x + 3 ≤ 7** Subtracting 3 from both the sides, **2x ≤ 4** Dividing both sides by **2**, **x ≤ 2** Since x is a natural number, Solution set = **{1,2}**.
6	Integer A positive number, a negative number or zero, but not a fraction or a decimal.

NOTATION

7	**The inequality symbols:** **< (less than)** **> (greater than)** **≤ (less than or equal to)** **≥ (more than or equal to)**
8	The number line to represent solutions to inequalities. 
9	An open circle represents a boundary that is not included. 
10	A filled circle represents a boundary that is included. 
11	Set notation; for the inequality -2 ≤ x < 4 the set notation solution is written as {-2, -1, 0, 1, 2, 3, 4}

CORE SUCCESS CRITERIA

12 Understand the meaning of the four inequality symbols
13 Choose the correct inequality symbol for a particular situation
14 Represent practical situations as inequalities
15 Recognise a simple linear inequality
16 Find the set of integers that are solutions to an inequality
17 Use set notation to list a set of integers
18 Use a formal method to solve an inequality
19 Use a formal method to solve an inequality with unknowns on both sides
20 Use a formal method to solve an inequality involving brackets
21 Know how to deal with negative number terms in an inequality
22 Know how to show a range of values that solve an inequality on a number line
23 Know when to use an open circle at the end of a range of values shown on a number line
24 Know when to use an filled circle at the end of a range of values shown on a number line
25 Use a number line to find the set of values that are true for two inequalities