Notes for parents (1).

The purpose of the activity is to help your child to:

- Add simple integer, i.e. positive and negative numbers, like +4 + -5 = -1
- Rename numbers in the range -3 to +3 using integers, e.g. -3 = +4 + -2 + -5.

Here is what to do:

Set up the game. You only need to make up the set of cards using a used cereal box. Also you need a printed copy of the gameboard, pencil and eraser. Then you are ready to play!

Renaming numbers is essential if your son or daughter is to gain flexibility in their calculation. Young people sometimes find renaming difficult so you need to be patient. It is important that you encourage risk taking. People who try to rename, even if they make mistakes at first, soon gain more accuracy.

So what do you do if your son or daughter says something that is incorrect? For example, after drawing a card that says +2 they aim to cross out +4, -6 and +3. Here are some good questions to ask.

"How can you check that these numbers (+4, -6 and +3) add to +2?" (Use known facts, particularly the names for zero like +4 + -4)

"Okay, do you know some facts that will help?" (-6 + +3 = -3, or +4 + +3= +7 are good choices)

"Do you know -6 + +3 = -3, or +4 + +3= +7?" (Ask only if your child does not suggest them).

"Good, +4 + +3= +7. What will you get when you add the third number,-6?" (+1)

"So, +4 + -6 + +3= +1 is too small. How could you fix that to get +2 without starting again?" (Add +1 to one of the addends to +5 + -6 + +3, +4 + -5 + +3, or +4 + -6 + +4).

"Which sum will work best for you on your kiwi sheet? Why?"

Points to note:

Addition can only involve two numbers at a time, it is a binary operation ('bi' means two). This idea can be confusing especially if there are three numbers to add. Your son or daughter may need support to understand that the sum of three or more numbers will be the same no matter which two of them they add first. Young people encountering integers for the first time often wonder if they behave in the same way as whole numbers.

Notes for parents (2). Activity next page.

If your son or daughter gets stuck you may like to support them with materials. Using $1 coins for positives and paper IOU's for negatives is a useful representation. An important idea is that having one dollar and an IOU for one dollar means the collection is worth zero.
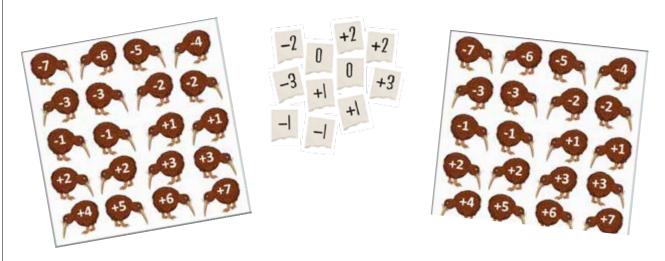
So this collection of +3 + -3 = 0

Remember the game is about adding without counting, so fall back to the materials as a last resort. Even when materials are used be sure to ask for prediction, e.g. "*Now you have negative six here and positive four here. How much do you think that is altogether?*" (before joining the dollars with IOUs to see what is left).

This is a game for two people to play. You need a copy of the game sheet (next page), a pencil and an eraser. There is one box for each player. You also need to make a set of cards from scrap cardboard labelled -3, -2, -2, -1, -1, 0, 0, +1, +1, +2, +2, +3

To play:
Take turns to shuffle the cards then draw the top one, say you get -2.

Cross out a set of kiwis that add to that total, so you might cross out -1, 0, and -1; or +4 and -6. Once a kiwi is crossed you cannot use it again.

The first person to cross out all of their kiwi wins.

During the game you are allowed up to three 'changes' to use whenever you want. A change is the chance to draw a different card to the one you get.