NUMBER/ALGEBRA

Rounding Run-Around

Learning focus
- Round (whole) numbers to the nearest 10

Key vocabulary
- Round
- Nearer, nearest
- Closer, closest
- Halfway
- More than
- Less than

Resources
- Numeral cards
- Chalk
- Dice

Activity

Introduce the activity by discussing children's estimations of the number of items in a set. For example:

How many sticks in this bundle?
How many leaves on this tree?
*How many daisies on the grass?*

Explain that it is not always necessary to know the exact number of items in a set. A number which is 'about right' or 'rounded off' is often appropriate. Discuss examples of numbers being rounded up or down to make them easier to work with.

There are about 50 cars in the car park.
The theatre can seat about 450 people.
It would take about 5 rolls of wallpaper to decorate this room.

Draw out a number track with 10 spaces.
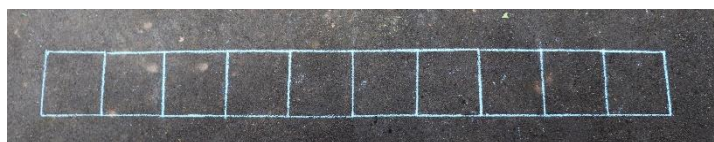
Distribute a set of numeral cards showing, for example, the numbers from 60 to 70. Ask the children with the numbers 60 and 70 to stand at the start and end of the number track.

Invite the child with the number 65 to stand in the middle. Then invite the children with the remaining numbers to stand in the correct position on the number track. In turn, ask each of the children with the numbers 61 to 64 and 66 to 69 to say whether they are closer to 60 (6 tens) or 70 (7 tens); they should then move to stand behind their nearest ten. If children are unsure, they could count how many jumps it takes to move backwards to the preceding multiple of 10 or forwards to the next multiple of 10. Encourage children to use appropriate language to explain their thinking.

> *Sixty-three is closer to 60 than 70. Sixty-three is 60 to the nearest ten.*
> *Sixty-nine is closer to 70 than 60. Sixty-nine is 70 to the nearest ten.*
> *What do you notice?*
> *What can we say about 65? Which multiple of ten is it closest to? What should we do?*

Discuss the position of 65: It is halfway between 60 and 70. Explain that the convention is to round up to the next multiple of 10.

Teaching point

Rounding to the nearest 10 involves finding which multiple of 10 is nearest to the given number and using this as an approximate value for the number.

When rounding to the nearest ten, if the ones digit is less than 5, then the number is rounded down to the preceding multiple of 10; but if the ones digit is greater than 5, then the number is rounded up to the next multiple of ten. It is helpful to visualise the number positioned on a number line between two multiples of 10 and then identify which one it is nearest to.

If the number ends in a 5, then it lies halfway between two multiples of 10 and there is no nearest multiple of 10! A positive integer less than 5 rounded to the nearest 10 is 0.

When rounding to the nearest 10, whether a number is rounded up or down depends on the ones digit, no matter how large the number is.

Progress to drawing an empty number line using chalk on the playground. Clearly mark the end points and the halfway point using chalk. Have a selection of numeral cards showing various 2-digit numbers. Explain that the children will choose a numeral card, stand in the appropriate place on the number line and then decide what the number is to the nearest ten. Suppose that a child selects the number 87. Encourage children to explain where it fits on the number line.

> *How many tens are in 87?*
> *What does 87 come between?*
> *What number comes halfway between 80 and 90?*

They should record the end points (80 and 90) and the halfway point (85) using chalk. Then ask children to explain what 87 is to the nearest ten.

> *Is 87 closer to 80 or 90?*

> *What is 87 to the nearest ten?*

As before, encourage them to use appropriate language to explain their thinking:

> *87 is closer to 90 than 80.*
> *87 is 90 to the nearest ten.*

After several examples, assign children to groups. Each group will need a piece of chalk and two dice. They should draw out their own empty number line on the playground. Explain that they will need to throw the two dice to generate a 2-digit number: one die represents the number of tens and the other represents the number of ones. Each time they generate a number, one child must stand in the appropriate place on the number line; children must then decide what the number is to the nearest ten.

Initially, each group should label the empty number line with the appropriate multiples of 10 and indicate the halfway point. In time, they should be able to round numbers to the nearest 10 mentally.

Finally, in a large space, set one end as 'round down' and the opposite end as 'round up'. Invite children to move around the space until you shout "Freeze!" Call out a number: "I am 81." Pause for a few seconds to allow adequate thinking time and then say, "One, two, three, round me." Children should then move to the appropriate area: 'round down' or 'round up'. Ask children to explain their thinking.

Taking ideas further

This can be extended to rounding numbers to the nearest 100 or 1000. It can also be extended to rounding decimal numbers. The same process applies: identify the significant points on the empty number line (the end points and the halfway point), position the number, and then decide whether it should be rounded up or rounded down.

Children could create a display showing headlines which give examples of situations involve rounding numbers.

Assessment opportunities

Are the children able to:

- Explain what rounding to the nearest 10 means
- Round numbers to the nearest 10
- Explain the rule for rounding up or down