MATHS

Lesson 7

Prep

Topic: Number and place value

Identifying quantities

Lesson concepts

- Number — Quantity
- Number — Counting
- Number — Subitising
- Number — Names and symbols

Today students will:

- identify quantities by referring to a starting quantity.

Resources

Find and prepare

Blocks

Five and ten frames

Objects/toys to place on ten frames

Ice cube/patty cake trays or egg cartons (cut back to ten cups, if necessary)

Cloth/paper

Dice

Simple grids

Key terms

numeral, subitise

For definitions and explanations of terms, please see the Glossary.

Lesson

Note

It is important to highlight and develop the following vocabulary throughout this lesson: count, start, number, number names, numerals, collections, quantities, visualise, part, whole, subitise, more, less, same.

R&T

Introduce the lesson: Explore more and less

Note

Use a regular dice (with dots) for the following activity.

If no dice are available, search online for virtual dice roller with dots.

- Briefly play a simple dice game using a board, for example: Snakes and Ladders.
- Discuss with students:
  - the quantities on the dice (without counting)
  - more/less/same quantities on the dice
  - the relationship between the dice quantities and spaces on the board.

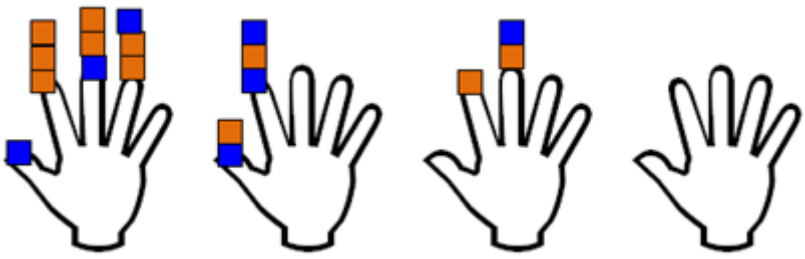
Focus questions

Q: How many dots were on that dice toss?

Q: How many more or less is that than the last toss? How do you know that?

Q: Look at the next throw. What can you see in that number? (For example: two as a part of six.)

Q: How many more spaces has the first player moved ahead? Now how many more are they ahead of the other player?



- Explain to students that they are going to play a comparing game.
- Have students:
  - place a number of blocks on the fingers of one hand

- compare their quantities with another person. For example: ‘Decide who has the same as you / more than you / less than you.’

Note

Encourage students to make comparisons by subitising or making visual comparisons first, and then counting, if necessary.

Focus questions

Q: How many blocks do you have? How can you tell?

Q: How many more do you need to make ten? How did you work that out?

Q: How can you tell that she/he has more/less/the same?

Q: How many will you have now?

Q: How many will you need to have the same as the other person?

Q: How could you describe the arrangement of blocks on your fingers? (I can see …)

Identify quantities by referring to a known quantity

- Demonstrate to students how to work out a quantity starting with a number that you can easily recognise.

I know that I am showing seven fingers because I know that there are five fingers on one hand and I can count on two more — 6, 7.

- Create a five frame using chalk or tape on the floor or draw it on a piece of paper (see an example on the next page). For this activity we are going to call the five frame a boat.
- Tell students to:
  - close their eyes while you fill a boat (frame) with a quantity up to five (blocks, toys)
  - open their eyes and tell you how many at a glance
  - identify small quantities that can be seen and named from memory (subitised)
  - identify larger quantities by starting with familiar quantities.

In five, I can see 2 then count on 3 more.

- After a few examples, extend this activity to a ten frame and later, two ten frames
- Follow this procedure with a quantity above five (two boats or a ten frame) and then a quantity above 10.

I know that there are 8 because I saw 5, then counted on 6, 7, 8.

I know that there are 8 because I saw 10 and counted back the empty spaces 10, 9, 8.

Focus questions

Q: What quantities can you see in the boat?

Q: How do you know that there are (5) in the boat? 6? 8?

Q: Is there more than one way of seeing (8)? What ways can you see 8?

Q: How could you make (22) in the boats?

- Provide students with the opportunity to practise identifying quantities by referring to familiar arrangements such as those in:
  - egg cartons (these can be cut back to 10, if necessary)
  - ice cube trays
  - patty cake trays
  - simple grids.

Note

While 5 and 10 are standard reference points, it is also important that students are flexible in seeing different part combinations of any collection.

- Explain to students:
  - that they will work in pairs
  - one student will cover their eyes while the other student places objects in the tray or carton
  - the first student then opens their eyes and identifies the quantity and tells which part they saw that helped them to work out the total
  - together they check that they are correct
  - swap roles and repeat the activity.

Focus questions

Q: What was the easiest way to work out the total?

Q: Which number did you start with most often?

Q: Why did you choose that quantity?

Q: How would you identify twelve?

- Have students explore totals using a screened (covered) quantity.

Note

Initially ensure students are clear that the quantity remains the same, even when covered.

Screening can be done with a cloth, piece of paper or placing the known part behind your back.

- Show students your hand and:
  - establish that there are five fingers
  - close your fist and hide it behind your back or cover it and ensure students remember that there are still five fingers
  - explain that they should be able to remember or visualise the hidden quantity
  - briefly display two fingers from the other hand
  - ask students to identify the total and explain how they worked that out
  - repeat the activity with other quantities.

Focus questions

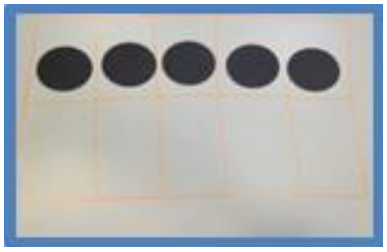
Q: How did you work out the quantity?

Q: Which number was the best to start with? Why?

Q: Where would you start if you were going to show 11? 6? 16?
A: For 11, I'd start at 10 and put one more on. For 16, I would start at 20 (using two ten frames and take 4 off).

Q: How could you work out a quantity more than 20?
A: I would use two 10 frames and put some below.

- Repeat these activities with a ten frame with parts covered and extra counters.



How many counters on this frame? How did you work that out?

How many counters on this frame? How did you work that out? How many are under the cloth?

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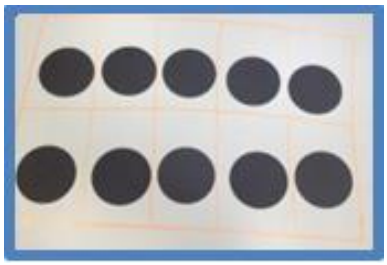

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