

## Number Sense Band 1 and Band 2 Estimation: Set 1

### Band 1

NS1.1  
Developing estimation skills

#### LINKS

MDS1.3 Time  
MDS1.1 Estimating and  
Measuring



### Band 2

NS2.3  
Using estimation  
appropriately  
LINKS  
MDS2.3 Time  
MDS2.1 Estimating and  
Measuring

### Resources needed for this set

#### You will need:

- Attribute blocks, a range of coloured counters
- One-minute timer or stopwatch
- Large sheet(s) of brown paper
- Paint, paper
- A variety of informal units for measuring with
- Hoops, masking tape/chalk
- The book, *"Counting on Frank"*

**Band 1**

NS1.1  
Developing estimation  
skills

**Number Sense****Band 2**

NS2.3  
Using estimation  
appropriately

**Lesson 1 of 3: How Many?**

**Main Idea: Developing concepts of estimation**

**Lesson 1: How Many?****A. Getting Ready - 2 mins:**

Ask the students to estimate how many people live in their community and to use a word to describe that number of people, rather than a number. Is it a lot, a few, not many, plenty or biggest mobs. What are all the words to describe how many people or things are in a group or collection. The concept of estimation is about enabling children to reasonably guess how many items are in a collection.

**B. Show Me How [Modelling] - 10 mins:**

Place 5 counters in a hoop. Place another handful of counters in the hoop and ask the students to guess how many counters there are now. In a second hoop place a larger quantity (approximately double the other collection/20 of counters and tell the students how many there are. Do they agree/disagree?

**C. Help Me Do It [Guided Practice] - 15 mins:**

Draw a 1 metre square shape on the floor with chalk or mark with masking tape. Ask the students how many people they think will be able to stand inside the square. Record the guesses and then ask the students to stand inside the square one by one until no one else can fit. Was their guess accurate or inaccurate?

**D. Let me do it myself [Independent Practice] -15 mins:**

Ask students to trace around a large shape, for example, from attribute block kit. Ask students to work in pairs, one student placing two large handfuls of counters inside the shape, the other guessing/estimating how many counters there are. Check the estimate by counting. How accurate was the estimation? Repeat this activity using a couple of different types of counters and different shapes as boundaries.

**E. What did I learn? - 10 mins:**

The shape of an area sometimes impacts on our ability to estimate quantity. A smaller area will appear to have more items than a larger area with the same number of items.

## Assessment

### INDICATORS:

- Band 1 looks and sounds like:
- Students estimate the size of the collection visually by grouping (subitising)
  - Students compare one collection with another and make estimations about the size of both groups.
- Band 2 looks and sounds like:
- students estimate sizes of collections and round number to the nearest 10,100,1000 to make estimation easier.
  - Students estimate the size of the collection visually by grouping (subitising)

### STRATEGIES and TOOLS:

- To gather and record evidence of student learning, consider:
- Students recording estimations in a chart or draw the collection of items in their books and record their guesses and checks alongside this picture.

## Language & Vocabulary

### Key Words:

Count, guess, estimate, calculate, smaller, larger, grouping, more than, less than

### Links to L1:

Depending on the language, learners may have ready access to vernacular terms describing concepts of estimation. If the translated meaning is not exactly the same, this can be confusing. It is best to develop the vernacular concepts at a different time.

## Resources

### You will need:

Attribute blocks, a range of coloured counters  
Hoops, masking tape/chalk

### Links to Other Materials:

Maths Today Series  
Maths in Aboriginal Schools  
NSW Mathematics K-6 syllabus (1989)

## More Ideas & Notes:

Students often have difficulty with estimation because 1) they like to be able to give correct answers, and 2) they are not given enough opportunities to develop the ability to make reasonable estimations

### Band 1 Extra Support:

Encourage students to have a 'guess' if they are hesitant about making estimations. Their guesses will become more accurate with practice

### Band 2 Extension:

Opportunities to explore situations where it might be best to round up and where best to round down when estimating

**Band 1**

NS1.1  
Developing estimation  
skills

LINK MDS1.3 Time

**Number Sense****Band 2**

NS2.3  
Using estimation  
appropriately

LINK MDS2.3 Time

**Lesson 2 of 3: How many in a Minute?**

**Main Idea: Developing concepts of estimation**

**Lesson 2: How many in a Minute?****A. Getting Ready - 2 mins:**

- Play a 5 minute game of 'line chasey' or 'follow the leader' to get the kids warmed up.
- After the game ask the kids to estimate how long they played for.

**B. Show Me How [Modelling] – 10 mins:**

- Using a one-minute timer or a stopwatch, get the students to stand on one foot and time them for one minute.
- Ask them to estimate how long they were standing still...how accurate/inaccurate were their estimations?

**C. Help Me Do It [Guided Practice] - 15 mins:**

- Once again, use the timer for periods of 1min and ask the students to estimate how many repetitions of a task they can undertake...eg: hopping on one foot, bouncing a tennis ball, singing a song, walking from one point to another.
- Record their estimations and then record the actual number of repetitions after they have completed the task.
- After the students have undertaken a number of tasks compare the estimations and actual tasks undertaken. Did their estimations improve as they became more aware of the amount of time they had to undertake each task?

**E. What did I learn? - 10 mins:**

- to make reasonable estimates of the number of tasks it is possible to complete in a minute
- to estimate the duration of time necessary to complete a range of tasks
- an appreciation of the duration of time

## Assessment

### INDICATORS:

Band 1 looks and sounds like:

- Students can measure the passage of time using timers/stopwatches.
- Are starting to make reasonable estimations of time

Band 2 looks and sounds like:

- Students can use a stopwatch to accurately measure the duration of tasks
- Students make reasonably accurate estimations as to the duration of a minute and the number of repetitions possible in a minute

### STRATEGIES and TOOLS:

To gather and record evidence of student learning, consider:

- Are they familiar/competent in the use of devices for measuring the duration of time
- Before commencing activities, have students record their estimations and on completion of tasks, the actual results. Compare. How reasonable/accurate are their estimations?

## Language & Vocabulary

### Key Words:

Count, guess, estimate, calculate, smaller, larger, grouping, more than, less than

### Links to L1:

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## Resources

### You will need:

One-minute timer or stopwatch

### Links to Other Materials:

Maths Today Series  
Maths in Aboriginal Schools  
NSW Mathematics K-6 syllabus (1989)

## More Ideas & Notes:

Time is particularly difficult for children to estimate. They will possibly need lots of opportunities to develop reasonable estimates

### Band 1 Extra Support:

As a starting point, it might be useful to use a stopwatch to measure, for example, 10 repetitions of an activity and use this information on which to base estimates as to the number of repetitions in a minute

### Band 2 Extension:

Encourage students to make estimates of time durations both longer and shorter than one minute

**Band 1**

NS1.1  
Developing estimation skills

LINK MDS1.1 Estimating and Measuring

**Number Sense****Lesson 3 of 3: Estimation, estimation**

**Main Idea: developing concepts of estimation**

**Band 2**

NS2.3  
Using estimation appropriately

LINK MDS2.1 Estimating and Measuring

**Lesson 3: Estimation, estimation****A. Getting Ready - 2 mins:**

Read the book "*Counting on Frank*" to the class. Ask the students why they think it is important to be able to estimate? Can they suggest some occasions when they might need to estimate? List and display these suggestions.

**B. Show Me How [Modelling] – 10 mins:**

Trace around a student's body (or two or three depending on class size) on a large piece of brown paper. Estimate how many footprints/handprints it will take to cover the area inside the student's body. Record the estimation and then dip students' hands/feet in paint and print inside the body shape. Continue until the total area is covered. Count the prints and compare the estimate with the actual total. Were the students accurate, or did they under or over estimate.

**C. Let me do it myself [independent Practice] – 15 mins**

In groups of 4 or five ask the students to undertake a range of the following estimation tasks, recording their estimation first, then the actual answer

- how many of their body lengths would equal the length of the room
- how many A4 sheets would be needed to cover their desk
- how many footsteps from their classroom door to the office door of the school
- how many times they can hop on one foot in one minute

**E. What did I learn? - 10 mins:**

- estimation of area and distance, measurement of areas and distance using arbitrary units
- reasonableness of estimation

## Assessment

### INDICATORS:

Band 1 looks and sounds like:

- Students are willing to make estimations in a variety of contexts
- Their estimates are becoming more reasonable/accurate

Band 2 looks and sounds like:

- Students are willing to make estimations in a variety of contexts
- Their estimates are generally reasonable/accurate

### STRATEGIES and TOOLS:

To gather and record evidence of student learning, consider:

- Recording estimates before commencing activities and comparing with actual values upon completion
- Note which students give examples of where it may be necessary/useful to make an estimate

## Language & Vocabulary

### Key Words:

Count, guess, estimate, actual, calculate, smaller, larger, grouping, more than, less than

### Links to L1:

Depending on the language, learners may have ready access to vernacular terms describing concepts of estimation. If the translated meaning is not exactly the same, this can be confusing. It is best to develop the vernacular concepts at a different time.

## Resources

### You will need:

The book, *"Counting on Frank"*

Large sheet(s) of brown paper

Paint, paper

A variety of informal units for measuring with

### Links to Other Materials:

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## More Ideas & Notes:

Provide daily opportunities, in appropriate situations, for students to make estimations of time, distance, area, number, etc

### Band 1 Extra Support:

To generate students' thinking, at first provide scenarios and ask whether an estimate would be appropriate/useful

### Band 2 Extension:

Encourage students to make estimations of mass, volume and capacity, longer and shorter periods of time