

Soroban: The Japanese Abacus

The Japan Society with Lee Blowers, Tomoko Hault and Kimie Markarian (2019)

Lesson 3: Addition on the Soroban

Learning Objectives:

- To practice ordering numbers 1 – 100
- To use the soroban for addition (ones and ones, ones and tens, tens and tens)
- To introduce students to the correct method of moving the beads

Learning Outcomes:

- Students can use the soroban for addition
- Students are aware of the correct way to manipulate the beads

Curriculum Links:

Maths

Y1: identify one more and one less; add and subtract one and two digit numbers to 20, including zero; solve one step problems

Y2: identify, represent and estimate numbers; compare/order numbers including '<' and '>'; add and subtract numbers using concrete objects, pictorial representations, and mentally.

Y3: secure place value to 100

Keywords:

Soroban - Japanese abacus; beads :1 bead, 5 bead; beam, frame, position marker, digit rod; clear - setting the abacus to 0.

Resources:

- Worksheet 3a: Greater or less than (0-100)
- Worksheet 4a: Adding numbers 1-9'
- Worksheet 4b: Adding numbers above 10 (Ones and Tens)
- Digital soroban (See link: <http://hp.vector.co.jp/authors/VA041064/english/index.html>)
- Example Question Sheet
- Video: [*in development*]

Loan Resources:

- Teaching soroban (optional)
- Class set of soroban

Task 1

1. Begin the lesson with a warm up, **Worksheet 3a** 'Greater or less than (0-100)'. Students must write the numbers represented on two soroban and put a comparison symbol (<, >) in the box between them.
2. Go through the answers as a class. You may choose to act the symbols out physically.

Estimated Time: 15 minutes

Task 2

1. Hand out **soroban** to students and recap the previous lessons on how to clear the soroban and representing numbers 0-99.
2. Show students how to move the beads correctly [*video resource in development*]. Use the thumb to push 1 beads up towards the beam and the index finger to push them down away from the beam. The index finger is used to push the 5 beads down towards the beam and up away from the beam. In this way it is possible to move multiple beads towards and away from the beam in one go and to move the 1 beads and 5 beads towards the beam at the same time by using a pinching movement.
3. Let students practice these finger movements .
4. Ask students to show you the answer of 1+2 on the soroban, using their thumb to push the beads up. Check all students have the correct answer.
5. Call out other simple additions (refer to the **example question sheet**). The focus should be on correctly manoeuvring the beads and clearing to zero between the sums.

Estimated Time: 10 minutes

Task 3

1. Introduce addition sums with two digit numbers (refer to the **example question sheet**). Show an example on the **teaching soroban** or **digital soroban**.
2. Do another sum and ask children to follow along on their own soroban. Encourage them to think about which fingers to use when adding the beads.
3. Do a few more sums together as a class. If students seem confident, call out a few sums for students to complete on their own.

Estimated Time: 10 minutes

Task 4

1. Students to complete **Worksheet 4a** 'Adding numbers 1-9' and 'Students can work in pairs.
2. Depending on ability and time students can also complete **Worksheet 4b**: 'Adding numbers above 10', or it can be used as a start of the day or review activity before the next lesson.

Estimated Time: 15 minutes
