

Soroban: The Japanese Abacus

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

Lesson 1: Introduction to the Soroban

Learning Objectives:

- To understand what a soroban is and how it is used.
- To understand that a soroban can represent large and small numbers.
- To identify and represent numbers 1-9 on a soroban.

Learning Outcomes:

- Students will recognise numbers 1 – 9 on a soroban.
- Students will practise making numbers 1 – 9 on a soroban.

Curriculum Links:

Maths

Y2: identify, represent and estimate numbers

Keywords:

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

Resources:

- PowerPoint Presentation: Introducing Soroban
- Worksheet 1: Numbers 1 – 9
- Digital soroban (See link: <http://hp.vector.co.jp/authors/VA041064/english/index.html>)

Loan Resources:

- Teaching soroban (optional)
- Class set of soroban

Task 1

1. Show students the soroban and ask to share ideas of what it could be, how it may be used and for what. Explain that it is a Japanese abacus, used to represent numbers and perform calculations.
2. Show students slides 2 and 3 on the **Introducing Soroban PowerPoint Presentation** to explain what the soroban can be used for and a brief history.
3. Using slide 4, introduce the different parts of the soroban one by one. You might like to make it a quiz by reading out the descriptions below and asking students to identify the correct part before revealing the answer. If using a **teaching soroban**, show students each part on the physical soroban as well.

- **The frame** is the outside rectangle which contains all the other parts of the soroban.
 - **The beam** is the bar that runs across the middle soroban. There are 4 beads on each rod below the beam, and one bead on each rod above the beam.
 - The beads above the beam are called **5 beads**. Can you guess why? Because they represent 5.
 - The beads below the beam are called **1 beads**. Can you guess why? Because they represent 1.
 - **The position markers** are the little dots on the beam. (When we make numbers on the soroban, the position marker is where the ones will be). It's best to use the position marker in the middle.
 - **The digit rods** hold all the 5 beads and the 1 beads.
4. Show students what a blank soroban looks like (slide 5) and how to clear it (slide 6). Give the students a **soroban** and practice 'messing up' and 'clearing the soroban'. In the video the person using the soroban says "ichi, ni, san". Let students guess the meaning and then reveal it means '1,2,3' in Japanese.

Estimated Time: 15 minutes

Task 2

1. Now students will learn how numbers are represented on the soroban. Start by explaining 1 beads. Display slide 7 and practice making 1, 2, 3, and 4, by calling them out for students to make on their own **soroban**. You can hide the slide if students seem confident.
2. Once students are comfortable with 1-4, explain 5 beads and 6-9 beads. Practice making numbers 5-9.
3. Make sure the students understand they should use a digit rod with a position marker on to represent the ones and encourage them to use the middle position marker.
4. Call out numbers between 1-9 for students to make. If students seem unsure, use the **teaching soroban** or **digital soroban** to make numbers 1–9 to check understanding.

Estimated Time: 10 minutes

Task 3

1. Briefly introduce place value on the soroban by using slide 7 of the PowerPoint Presentation. Check understanding of the role of the position marker and see if students can identify the tens

rod and the hundreds rod. If students are confident, see if they can identify other digit rods (e.g. thousands or numbers below zero.)

Estimated Time: 3-5 minutes (NB: Place value is revisited in the following lessons.)

Task 4

1. Ask students to work in pairs on **Worksheet 1** 'Soroban Practice 1: Numbers 1-9'. One student should read the number represented on the soroban on the worksheet and the other student should make it using the soroban. If both students are correct, the image of the soroban should match the physical soroban.

Estimated Time: 10 minutes

Extension Activities

1. Students take it in turns to challenge their partner to make numbers 1-9 on the soroban. This can be made into a group activity by asking students to take it in turns to be 'quiz master' in their table groups.
2. Count slowly together as a class from 1-9 moving the beads at the same time. Pause when you reach 4 to see if students realise they need to remove the 1 beads before moving the 5 bead.
3. Ask students how ten might be represented on the soroban. Using the **digital soroban** or the **teaching soroban**, show the tens rod with one bead pushed up for ten. Tell students they will learn more about the tens rod in the next lesson.