

Soroban: The Japanese Abacus

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

Lesson 5: Review and Practice Fluency

Learning Objectives:

- To strengthen number bonds to 10
- For students to add and subtract fluently on the soroban

Learning Outcomes:

- Students can add and subtract with one and two digit numbers on the soroban
- Students are able to answer number bonds to 10

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.

Keywords:

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

Resources:

- PowerPoint: Let's Practice

Loan Resources:

- Teaching soroban (recommended, available free on long term loan from the Japan Society)
- Class set of soroban

Additional resources:

- Number bonds practice game 'Smoothie': <https://www.ictgames.com/mobilePage/smoothie/>
- Number bonds practice game 'Save the Whale': <http://www.ictgames.com/saveTheWhale/>
- Worksheets: Ordering 1 (1-9); Ordering 2 (1-100); Sequence

Task 1

1. Give out the **soroban** to students and begin with a warm up by challenging them to follow the steps: $1+3-2+5-1$. The sorobans should show 6. If students do not seem confident go through the steps together using the **teaching soroban** or **digital soroban**.
2. Give another question, this time including 2 digit numbers: $2 + 20 - 11$. The sorobans should show 11.

Estimated Time: 5 minutes

Task 2

1. Practice fluency in adding and subtracting on the soroban by using the sums on the **PowerPoint 'Let's Practice'**. Depending on student ability, you may decide to do the questions step-by-step together as a class, or ask them to do the sums independently and then take answers.
2. After completing each 'level' of questions assess whether to go to the next level, or do some revision.

Estimated Time: 15-20 minutes

Task 3

1. Play number bonds to ten 'tennis'. This task is an introduction to the 'make up to 10' idea required for carrying and borrowing on the soroban [materials dealing with these are in development].
2. Say any number and 'serve' the imaginary ball, the students should reply with the number needed to make 10 and 'return' the imaginary ball. e.g. Teacher: 3, Students: 7, Teacher: 5, students: 5.
3. See the links under 'Additional Resources' for two other activities to practice number bonds: the Save the Whale game or Make a Smoothie game.

Estimated Time: 5 minutes

Task 4

1. The students play number bonds matching in small groups.
2. Give each group 2 sets of playing cards minus the tens, jokers and picture cards (explain that ace cards are 'one'). Students shuffle them and place them face down.
3. Students take it in turns to turn over two cards and if they go together to make ten they can keep that pair. Encourage students to say out loud what card they need to make a pair after they take the first card and before they pick up the second card. If the two cards don't make 10, they are put into a discard pile. If students go through all the cards, shuffle the discard pile and begin again.
4. The winner is the person with the most pairs when all cards are taken or when the timer goes.

Estimated Time: 10 minutes

Extension Activities

1. See the additional resources for **ordering and sequence worksheets**: Ordering 1 (1-9), Ordering 2 (1-100), Sequence (**NB**: This worksheet is to practice reading numbers the soroban; students will not be able to use the soroban to work out the next number in the sequence.)