ACE

GO MATHS
TEACHER GUIDE

YEAR
F

ORIGO
EDUCATION

Exploring the Addition Concept

CONTENT DESCRIPTION

NA004   Represent practical situations to model addition and sharing

MATHEMATICAL BACKGROUND

The students will now be familiar with numbers and should be able to identify groups of objects and relate them to pictures and numerals. In this unit, the addition concept is developed through experiences with active and static stories. The active addition stories use language such as 'join' and 'combine' to help students understand the addition concept. The static addition stories state the number in each group but do not suggest any action. Both the active and static story ideas seek a 'how many altogether' answer. The students will work with concrete materials, as well as reading, telling and illustrating stories to support the development of the addition concept. They also begin to write informal number sentences using words.

LESSON OVERVIEW

10.1   Using 'Active' Stories to Introduce the Addition Concept

10.2   Using 'Static' Stories to Identify the Parts

10.3   Using Pictures to Add

10.4   Completing Addition Sentences to Match Pictures

10.5   Using a Number Track to Add

LANGUAGE

The students will use and develop the following language:
add, addition, join, combine, altogether, addition mat, jump one more, jump two more

Further Support

Lessons in this unit are also supported by the ORIGO Big Book, *Mirror Mirror*.
This full-colour storybook develops the mathematical language for doubling numbers to five.
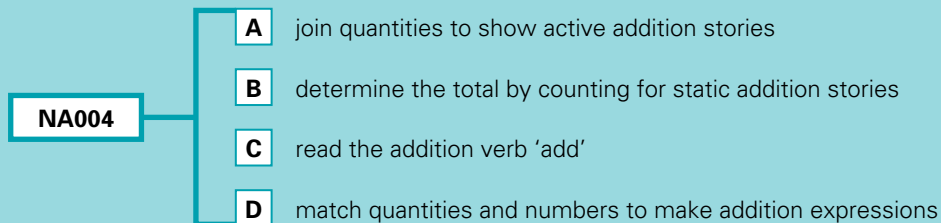
Optional Digital Resources and Program Blackline Masters

The lessons in this program are further supported by optional online resources.
Go to **www.origoeducation.com/go-maths-ace-support** for further information about the program blackline masters and these resources.

Assessment

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CONTENT INDICATORS

On completion of this unit, the students should be able to

NA004

A   join quantities to show active addition stories

B   determine the total by counting for static addition stories

C   read the addition verb 'add'

D   match quantities and numbers to make addition expressions

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TECHNIQUES

The following tools can be used to assess the content indicators.

1. Learning Centre Activities **A** **B** **D**

Use the learning centre activities described over the page to create opportunities for informal assessment through observation.

2. Diagnostic Probe **A** **B** **C** **D**

If necessary, use the following for an in-depth informal analysis of a student's understanding.

a. Give the student a box of counters **R** and then show the student these cards: **5** **add** **4** . Say: *Read this addition story and act it out with the counters.* Make sure the student pushes the two groups of counters together and counts to find the total.

      C **D**

b. Show the student the following picture. Ask the student to write the addition expression to match the picture. Look for correct use of the words 'add' and 'is'.

      A **B** **C** **D**
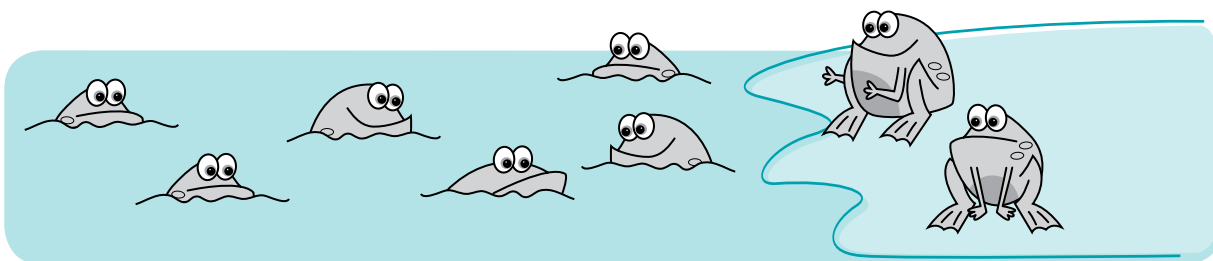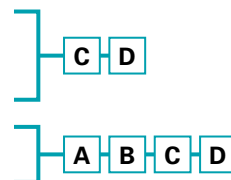
RECORDING
Content Strands

Record each student's achievement of the content indicators in the box(es) for this unit alongside the relevant content description(s) on a copy of the Progress Record (page xii).

Foundation					
NA004 **10**	**12**	**17**	**19**	**22**	**28**

Proficiency Strands

Record significant observations in the Progress Record (page xiv).

Materials

LESSON 10.1

- *GM ACE* student journal, page 26
- Blackline Master 26 copied onto an overhead transparency and cut in half to separate the mats
- Overhead projector
- Counters R or small toys

LESSON 10.2

- *GM ACE* student journal, page 27
- Blackline Master 14 copied onto an overhead transparency (*Note:* Retain the transparency for use in the next lesson)
- Overhead projector
- Counters R or small toys
- 1 copy of Blackline Master 14 for each pair of students
- Large cards showing the following addition expressions: '6 add 1', '4 add 3', '7 add 2','5 add 0', '3 add 3' and '2 add 4' (*Note:* Retain the cards for use in the next lesson)

LESSON 10.3

- *GM ACE* student journal, page 28
- Transparency from the previous lesson
- Overhead projector
- Counters R
- Addition expression cards from the previous lesson
- Ten-frame 👁 and a seven-frame (use Blackline Master 22) each copied onto an overhead transparency, or drawn on the board
- 2 non-permanent markers in different colours

LESSON 10.4

- *GM ACE* student journal, page 29
- Overhead projector
- Counters R
- 1 copy of Blackline Master 26 for each student
- Scissors for each student

LESSON 10.5

- *GM ACE* student journal, page 30
- A large cardboard number track for 1 to 10, placed on the floor
- Frog stick puppet

Learning Centres

FELT BOARD FUN B

Preparation

Use a ribbon to divide a felt board into two sections. Place a variety of felt characters
(six of each type) in a bag beside the felt board.

Activity

Have the students work in pairs. Each student places felt characters on a different side of
the ribbon on the board. Then the students count together to find the total. They can also take turns placing felt characters
on both sides of the ribbon while their partner counts to find the total.

Look and listen for: Counting two groups of objects using one-to-one correspondence to determine the total
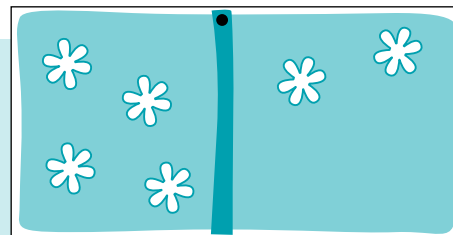
FISHING FUN A D

Preparation

You will need one regular die, two resealable plastic bags with lines drawn on them to make them look like fishing nets and
12 cardboard fish. (You could use painted stones to look like fish instead of using cardboard fish.) You will also need a pencil
and sheet of paper for each student.

Activity

Have the students work in pairs. One student rolls the die and places that number of fish in their bag. Then the other student rolls
the die and puts that number of fish in their bag. Each student counts the fish in their bag. Then they empty the 'nets' and count
how many fish they have altogether. Repeat at least three more times.

Some students will want to record the number of fish they caught in their 'nets'. Encourage them to also record the number
of fish they caught altogether.

Look and listen for: Accurate counting of the total

Save: Any recording of the total numbers of fish for students' portfolios

LET'S RACE A

Preparation

You will need two regular dice and a manila folder opened out with 40 dot stickers ranged across it to make a path.
You will also need a game token or counter ℝ for each student.

Activity

Have the students play in pairs or groups of three or four. In turn, each student rolls both dice and adds the two numbers rolled.
Once the total is worked out, the student moves their token that number of dots along the path. Have the students say the
addition expression as they move their token, for example, 'I rolled a two and a four. Two add four is six, so I move six dots.'
The winner is the first player to reach the end of the dots path.

Look and listen for: Accurate addition of the numbers rolled on the dice

PAINTINGS FOR ADDITION A B D

Preparation

You will need large sheets of paper, paints, paintbrushes and a flat table or easel.

Activity

Each student paints a picture of two groups. During Reflection time this week, ask a student to present their painting and discuss how many things are in each group and how many things there are altogether. At the end of the week, the students can write the addition sentence on their paintings using the words 'add' and 'is'. The paintings can be displayed in the classroom.

Look for: Representation of two separate groups

Listen for: Students saying their own addition story

WRITE THE ADDITION SENTENCE B D

Preparation

For each pair of students you will need an A4 card with a ribbon or line down the middle, connecting cubes and a blank cube ℝ to be made into a die showing: one face with one dot, one face with two dots, two faces with three dots, one face with four dots and one face with five dots.

Activity

Have the students work in pairs. One student rolls the 'die' and places that number of cubes on one side of the card. The other student repeats the action, placing their group on the other side of the card. Together the students count the total. They put the cubes back and repeat several times. The students can keep a record of the additions by writing each addition expression they make using the words 'add' and 'is'.

Look and listen for: Accurate counting of the total

Save: Any written work for students' portfolios

Using 'Active' Stories to Introduce the Addition Concept

In this lesson, students act out stories to model addition. All of the stories involve joining one group to another.

DAILY NUMBER SENSE

Ask the students to close their eyes. Say: *Make a picture in your mind. I want you to think of five stars. Keep your eyes closed. Can you see your five stars? Point to each star as we count them. Ready? One, two, three, four, five stars. Very good! Now take the five stars and move them around to make a different arrangement. Are there still five stars?* Repeat with the students imagining a group of six balloons.

ACTIVITY

1. Invite volunteers to help act out each of the following stories. Involve the other students in counting the number in each part and then counting the total.

   • *Three birds are on a tin shed. Three more birds fly in and land on the tin shed. How many birds are now on the shed?* Count the total number of birds aloud with all of the students.

   • *Two frogs are in the pond. Three more frogs jump into the pond. How many frogs are in the pond now?* Count the total number of frogs aloud with all of the students.

   • *Four children are reading books. No more children join them. How many children are reading books?* Count the total number of children reading aloud with all of the students.

   Create more active stories if time allows.

2. Project the two mats from Blackline Master 26 and place the counters or small toys in two groups, each group on one of the mats. Discuss the groups in an active story, for example: *Three bears and four bears join together to form a singing group.* Push the mats with the counters together. Then ask: *How many bears are there in total?* Have the students count to determine the total. Reinforce the answer by saying: *Three bears and four bears make seven bears altogether.* Create more active stories to model the idea. Invite students to show a story on the mats and count how many altogether.

3. Have the students work independently to complete page 26 (🫖 ●) of the *GO Maths ACE* student journal.

REFLECTION

Discuss the idea of joining for addition. Ask: *How else could we show joining for addition? What words could we say that show joining?* Say some examples, such as 'fly into', 'jump into', 'bake more', 'draw more', 'make more' etc.
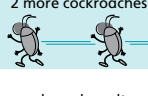
MATERIALS

- *GM ACE* student journal, page 26
- Blackline Master 26 copied onto an overhead transparency and cut in half to separate the mats
- Overhead projector
- Counters [R] or small toys

Student Journal

UNDERSTANDING   FLUENCY   PROBLEM SOLVING   REASONING

Using 'Static' Stories to Identify the Parts

In this lesson, students discuss and name the two groups for a static addition story and determine the total by counting. They read the operation word 'add'.

DAILY NUMBER SENSE

Ask the students to close their eyes. Say: *Make a picture in your mind. I want you to think about four aeroplanes. Keep your eyes closed. Can you see your four aeroplanes? Did you need to count? Now take the four aeroplanes and move them around to make a different arrangement. Move them around again to make another arrangement.* Repeat with the students imagining a group of five cats.

ACTIVITY

1. Show the transparency of Blackline Master 14. Place five counters on one jar and three counters on the other jar. Ask: *How many counters altogether?* (Do not move the counters.) Invite different students to discuss the total and describe their thinking.

2. Repeat using verbal addition expressions such as '5 add 2', '4 add 1', '6 add 2', '3 add 1' and '5 add 4'.

3. Show one of the addition expression cards and read it together with the class. Point to the word 'add' and spell it with the students. Repeat with another of the cards.

4. Arrange the students into pairs and give each pair nine counters and a copy of Blackline Master 14. Show the students the '6 add 1' addition expression card. Have one student from each pair place six counters on one jar and the other student place one counter on the other jar. They then count the counters together. Repeat for the remaining addition expression cards.

5. Have the students work independently to complete page 27 (☕ ♥) of the *GO Maths ACE* student journal.

REFLECTION

Discuss the students' answers to page 27 of the *GO Maths ACE* student journal. Ask questions such as: *How did you find out the total? How do you know you have the total number?* Encourage the students to discuss their ideas.

MATERIALS

- *GM ACE* student journal, page 27
- Blackline Master 14 copied onto an overhead transparency (*Note:* Retain the transparency for use in the next lesson)
- Overhead projector
- Counters [R] or small toys
- 1 copy of Blackline Master 14 for each pair of students
- Large cards showing the following addition expressions: '6 add 1', '4 add 3', '7 add 2', '5 add 0', '3 add 3' and '2 add 4' (*Note:* Retain the cards for use in the next lesson)

Student Journal

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Using Pictures to Add

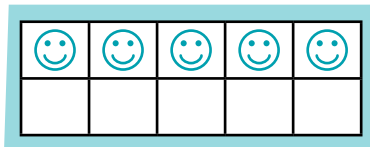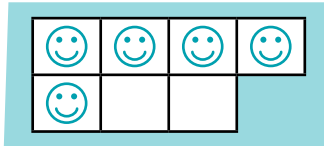In this lesson, students write the two addends and then the total for an addition expression such as '___ add ___ is ___'.

DAILY NUMBER SENSE

While the projector is off, place four counters on the screen. Cover the counters with a piece of paper. Say: *I will show you a dot arrangement for a short time.* Lift the paper to reveal the counters for four seconds as you say: *Look at the dots and think about how many you see. Whisper the number.* Then ask several students to share how they knew the number. Repeat with six counters and then five counters.

ACTIVITY

1. Show the transparency of Blackline Master 14. Place three counters on one jar and four counters on the other jar. Ask: *How many counters altogether?* (Do not move the counters.) Ask the students to discuss the total and how they knew what it was. Write ___ **add** ___ **is** ___ on the board and record the addends and then the total. (3 add 4 is 7.)

2. Repeat using the addition expression cards.

3. Show the seven-frame transparency. Draw five happy faces in the boxes of the seven-frame as shown on the right. Ask: *How many happy faces are in the frame?* Write **5** on the board. Invite a student to draw two more happy faces with a different colour. Write **add 2** on the board. Ask: *How many happy faces altogether?* Record **7** to complete the sentence on the board. Read the whole sentence with the students. Erase the numbers and the frame and repeat with one face in the seven-frame.

4. Repeat Step 3 using the ten-frame. Draw five happy faces (as shown on the right), ask a student to draw another group of faces and have the student record the numbers on the board. Read the addition sentence aloud together. Repeat with three faces on the ten-frame.

5. Have the students work independently to complete page 28 (🫖 ▲) of the *GO Maths ACE* student journal.

REFLECTION

Write the following addition sentences on the board one at a time:

    6 add 3 is ___   **4 add 2 is ___**   **5 add 3 is ___**   **7 add 1 is ___**

Invite individuals to the front and say: *Tell me what this says and show me an example with counters.*

MATERIALS

- *GM ACE* student journal, page 28
- Transparency from the previous lesson
- Overhead projector
- Counters Ⓡ
- Addition expression cards from the previous lesson
- Ten-frame 🔵 and a seven-frame (use Blackline Master 22) each copied onto an overhead transparency, or drawn on the board
- 2 non-permanent markers in different colours

Student Journal

UNDERSTANDING   FLUENCY   PROBLEM SOLVING   REASONING

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Completing Addition Sentences to Match Pictures

In this lesson, students write the two addends and then the total for an addition expression such as '___ add ___ is ___'. They also write the operation word 'add'.

DAILY NUMBER SENSE

While the projector is off, place five counters on the screen. Cover the counters with a piece of paper. Say: *I will show you a dot arrangement for a short time.* Lift the paper to reveal the counters for three seconds as you say: *Look at the dots and think about how many you see. Whisper the number.* Then ask several students to share how they knew the number. Repeat showing six counters, zero counters, three counters and four counters.

ACTIVITY

1. Give each student ten counters and a copy of Blackline Master 26 and have them cut it in half to separate the mats. Write **3 add 5 is** ___ on the board. Have each student place 3 counters on one mat and 5 on the other. Discuss the total and then write **8** in the addition sentence on the board. Repeat with the sentences **4 add 6 is** ___, **8 add 1 is** ___ and **5 add 2 is** ___. Re-read each sentence before beginning the next one.

2. Ask seven students to come to the front of the class. Write **7** on the board. Invite another two students to join the first seven. Write **7 add 2 is** ____ on the board. Ask students to say the answer before writing **9** on the board.

3. Return to the addition mats. Have the students place 5 counters on one mat and 4 on the other. Ask the students how they would write this as a number sentence. Write **5 add 4 is 9** on the board.

4. On page 29 (🫗 ■) of the *GO Maths ACE* student journal, work together through **4 add 2 is** ____ and **3 add 4 is** ____, allowing plenty of time for the students to write the addition word and total. Then have the students work independently to complete the page.

REFLECTION

Encourage the students to suggest other words that mean 'add', such as 'and', 'join' and 'combine'. Ask for other words that mean 'total', for example 'altogether'.
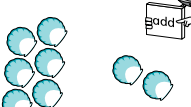
MATERIALS

- *GM ACE* student journal, page 29
- Overhead projector
- Counters Ⓡ
- 1 copy of Blackline Master 26 for each student
- Scissors for each student

Student Journal

UNDERSTANDING   FLUENCY   PROBLEM SOLVING   REASONING

Using a Number Track to Add

In this lesson, students use a number track to add by jumping one or two from a number as a representation of addition.

DAILY NUMBER SENSE

Say: *I will say a number and I want you to think about that many dots. Put five dots in your mind. Keep that picture in your mind. What is the arrangement of your dots?* Invite a few volunteers to discuss their dot arrangement. Repeat with mental images of three, six, four, zero and two dots.

Student Journal

ACTIVITY

1. Place the large number track on the floor. Have the students take turns to act like frogs and jump on the number track to represent an addition expression. Say: *Frog is at five. Start at number five. Jump two more. Where are you now?* Reinforce the addition by saying: *Five add two is seven.* Repeat with other students, using stories such as: *Frog at two, jump one. Frog at seven, jump one. Frog at six, jump two. Frog at three, jump two. Frog at eight, jump two.*

2. Repeat the stories in Step 1 using the stick puppet and a number track showing 1 to 10 drawn on the board. Have different students move the puppet to show the jumping on the track.

3. Write on the board **5 add 2 is ___**. Invite a student to use the stick puppet to show the jumps on the number track. Draw an arrow on the track on the board to show the jump. Record the landing number in the addition expression. Then re-read the addition sentence: *5 add 2 is 7.*
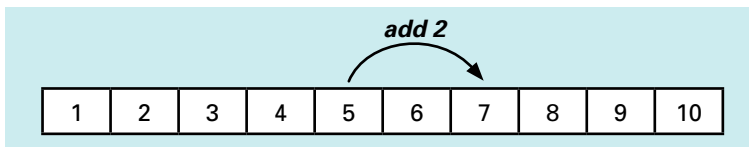
4. Repeat for **4 add 1 is ___**, **6 add 2 is ___**, **3 add 2 is ___**, **5 add 1 is ___** and **7 add 2 is ___**.

5. Have the students work independently to complete page 30 ( ) of the *GO Maths ACE* student journal.

REFLECTION

Point to the number track on the board and ask the students: *How can the frog show us how to add on the number track?*

UNDERSTANDING   FLUENCY   PROBLEM SOLVING   REASONING

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