

MATH NAVIGATOR®

ASSESSMENT RESOURCES

Using Addition and Subtraction to Solve Problems to 100



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Pre-Test/Post-Test Administration

test administration

The pre-test and post-test for this module have two versions — an on-grade level version and an intervention version. The on-grade level is designed for first graders. You can read the problems to the students as a class and have them answer individually. The intervention version is designed to be administered online or paper-and-pencil.

For the pre-test, let students know that this test will help you determine what they already know. Explain that the module will help them learn how to solve problems that seem difficult now.

For the post-test, remind students that this test will help you determine what they have learned about using addition and subtraction to solve problems to 100.



Online Testing for the Intervention Version

Once your testing window has started, you can begin testing.

- Seat students individually in front of a computer.
- Give each student a piece of scratch paper.
- Make sure that students have pencils.
- Have students use their access codes to log in to the pre-test.
- Before each student begins the test, confirm that he or she is taking the correct test.

Tell students that:

- Each question will be displayed on the computer screen. Students should select the answer they think is best by clicking on the option choice and then clicking to confirm the choice.
- After students answer a question, the next question will appear on the computer screen.
- Students may choose to skip a question and flag it to come back to before ending the test.

During the test:

- Observe students as they work to make sure that they are actively engaged in the testing process.
- Support any students who seem to find the material challenging. Encourage them to make a good estimate for any problem they find difficult. You may wish to provide manipulatives.

Once students have answered all the questions, they should follow the online prompts to conclude the test.



After the pre-test, if some students finish early, pair each of them with another student. Give each student a Student Book. Tell the students to read the instructions on page 1 of the Student Book and start working.



english language learners

Be aware that some English language learners (ELLs) may have difficulty with the language on the test. Make note of any students who appear to be having difficulty with vocabulary. These students may need additional help when new terminology is introduced in the module.



Paper-and-Pencil Test

On-grade Level Version:

- Seat students individually.
- Distribute tests.
- Make sure that students have #2 pencils.
- Read each question to students. Remind them that this is solo work.
- Give them time to answer the questions before you move to the next question.
- Collect their tests.

Intervention Version:

- Print copies of the test and answer sheets for each student from ARO.
- Seat students individually.
- Distribute tests, answer sheets, and scratch paper.
- Make sure that students have #2 pencils.
- Instruct students to fill in the answers on their answer sheets.

During the test:

- Observe students as they work to make sure that they are actively engaged in the testing process.
- Support any students who seem to find the material challenging. Encourage them to make a good estimate for any problem they find difficult. You may wish to provide manipulatives.

After students finish, collect their tests, answer sheets, and scratch paper. You will need to upload students' answers to the ARO system so you can analyze the results.



After the pre-test, if some students finish early, pair each of them with another student. Give each student a Student Book. Tell the students to read the instructions on page 1 of the Student Book and start working.



analyzing results

Irrespective of the method (online or paper-and-pencil) that you chose to administer the test, your students must be enrolled in the ARO system in order for you to obtain computer-generated reports.

These reports:

- Offer rich, instructionally-relevant information to teachers and administrators at the individual student, class, grade, school, and district levels.
- Include total test score performance information and item-level analysis for each student and for all students combined.
- Are important references in helping you to assess the misconceptions your students are struggling with and decide what concepts to focus on during the module.

For results:

- **Online Testing:** ARO will automatically generate performance reports.
- **Paper-and-Pencil Test:** Upload students' data to ARO. Once you have uploaded the data, ARO will generate performance reports.

Additional information about the online test reporting can be found on ARO.

Remember to give a copy of the reports to the students' regular mathematics teachers to help them in planning subsequent instruction.



reflection



When students have finished working on their pre- or post-tests, ask them to open the Student Book to page 1 for the pre-test and page 68 for the post-test and write a response to the reflection prompt.



english language learners

It is important to point out to ELLs the progress they have made over the course of the module. Help them look back to where they were when they started so they can see how much they have progressed with both the language and the mathematics.

Checkpoint 1

7



preparation

- Make a copy of the Checkpoint 1 for each student.
- Seat students individually and distribute the checkpoint lesson to each student.



setting the direction



Today's lesson is a checkpoint.

- Today we are going to do a checkpoint. First, I am going to read you some problems and let you write the answers. You will work solo for all of these problems.
- After we finish the checkpoint problems, we are going to do something that we call "Learning from the Checkpoint." You get to be the teacher! I will show you some mistakes that other students made when they wrote their answers, and you will try to explain what they were thinking that was not correct.

At the end of the lesson, collect the completed checkpoints. Enter the data from each checkpoint into ARO. The report generated by ARO will help you assess whether students are on track and making sufficient progress.

checkpoint

Read the problems one at a time to students while they follow along in the checkpoint lesson. After each problem, give students time to do their work and circle their answers in their checkpoint lessons independently.

The checkpoint portion of this lesson is all solo work.



english language learners

Some ELLs may be intimidated by the testing situation. Be sure to check for comprehension and provide assistance with the language in the problems as needed.

There is no probing for understanding during the checkpoint portion of this lesson. The probing questions will be used during Learning from the Checkpoint.

Checkpoint 1 7

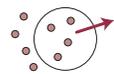
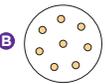
checkpoint

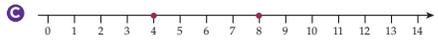
Solve the problems below. Circle your answers in your checkpoint lesson.

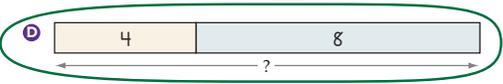
- Mrs. Chi bought 25 pounds of clay for an art project. Later she decided that 25 pounds would not be enough, so she bought an extra 32 pounds of clay. How much clay did she buy altogether?

A 7 pounds B 82 pounds
 C 57 pounds D 13 pounds


- There were some birds in a tree. Four (4) flew away. Then there were 8 left. How many birds were in the tree to start with? Which math drawing best shows what happened?

A  B 

C 

D 


- There were 65 balloons at the school fair. During the day, some of the balloons popped. At the end of the day there were 42 balloons left. How many balloons popped during the day? What could you do to solve this problem?

A Add 42 and 65
 B Subtract 42 from 65
 C Multiply 65 by 42
 D Divide 65 by 42


- Anthony has 57 pennies in his bank. His brother has 19 more pennies than he does. How much money does his brother have?

A 66¢ B 42¢ C 38¢ D 76¢



learning from the checkpoint



Explain to the group that when students choose a wrong answer, it is usually because they have a misconception or have made a common mistake.

learning from the checkpoint

Talk about problems 1–4 with your class.
If you need to, correct your answers.

Assessment Resources, page 13



english language learners

You may want to write the word *misconception* on the board and have students define it in their own words.



scaffolding for success

During the discussion, you may record on the board or chart paper to help the group follow the explanations students give. Students can then refer to both the students' explanations and your recording during the discussion.

Present the examples that follow of common mistakes students might make in solving the problems in this checkpoint, and elicit students' thinking as you facilitate a group discussion.

- Now I will show you some mistakes that other students made when they solved these problems, and you will try to explain what the students were thinking that was not correct.

Ask questions similar to these:

- Why might another student choose <Answer choice letter> as the correct answer?
- What would you tell a student who made this mistake to help him understand the problem and how to solve it?
- How did you know that you should [subtract] to get the answer?



scaffolding for success

"Why might another student choose <Answer choice letter> as the correct answer?" This is a challenging metacognitive question. You may need to model the thought process for answering the question first, because students will probably not have had much experience with this way of thinking.



teaching strategies

This discussion of common mistakes engages students in the mathematical practice of explaining their own reasoning and making sense of other's reasoning (MP3). Note students' ability to explain their conclusions to others and justify the errors in and correctness of solutions.

Learning from Problem 1

The correct answer is **C**.



Incorrect answer choice: **A**

Possible misconception: The student might think this was a subtraction problem because it talks about “more” clay.



Incorrect answer choice: **B**

Possible misconception: The student might think this was an addition problem and they added all the numbers in the problem.



Incorrect answer choice: **D**

Possible misconception: The student might think this was a subtraction problem and subtract 2 from 5 instead of regrouping.

Learning from Problem 2

The correct answer is **D**.



Incorrect answer choice: **A**

Possible misconception: The student might think that this is a subtraction problem because the birds flew away, which is similar to the idea of “taking from.”



Incorrect answer choice: **B**

Possible misconception: This drawing shows birds in a tree and matches the final situation, so it shows “what happened” instead of “what happens.”



Incorrect answer choice: **C**

Possible misconception: This number line has the locations of the numbers in the problem marked on it.

Learning from Problem 3

The correct answer is **B**.



Incorrect answer choice: **A**

Possible misconception: The student might think this was an addition situation because often when the problem has two numbers that are similar in size, you add.



Incorrect answer choices: **C** and **D**

Possible misconception: The student who decides to multiply or divide probably has little or no concept of when to use any of the operations and is basing his choice on something like the fact that the class has been studying multiplication or division.

Learning from Problem 4

The correct answer is **D**.



Incorrect answer choice: **A**

Possible misconception: The student might add the numbers and forget to make a new 10.



Incorrect answer choice: **C**

Possible misconception: The student might think this is a subtraction problem.



Incorrect answer choice: **B**

Possible misconception: If the student subtracted and made the common mistake of subtracting the smaller number from the larger number when she subtracted the ones, she would get 42 cents.



reflection



When you have about 2 minutes left, stop the debug groups, even if they are not finished. Have students respond to the reflection prompt in the Student Book.

Checkpoint 2

13

preparation

- Make a copy of the Checkpoint 2 for each student.
- Seat students individually and distribute the checkpoint lesson to each student.

setting the direction



This lesson is a checkpoint lesson. Tell students to complete the problems. Ask them to do their work in the check point lesson and write the correct answers.

At the end of the lesson, collect the completed checkpoints. Enter the data from each checkpoint into ARO. The report generated by ARO will help you assess whether students are on track and making sufficient progress.

checkpoint



Read problems 1–4 one at a time to students while they follow along in the checkpoint lesson. After each problem, give students time to do their work and circle their answers in their checkpoint lesson independently.



The checkpoint portion of this lesson is all solo work.

Checkpoint 2

13

checkpoint

All of the problems in this lesson refer to the math story below.

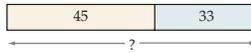
- Read the story.
- Circle your answers in your checkpoint lesson.

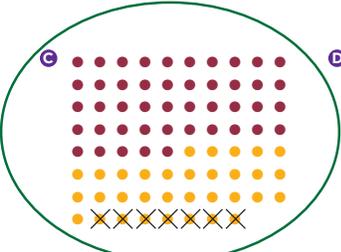
There were 45 books on one shelf of a bookcase and 33 books on the other shelf.

Anna took 7 books from the bookcase to the book sale.

Now how many books are there in the bookcase?

1. Which math drawing matches the story?

A  **B** 

C  **D** 

There is no probing for understanding during the checkpoint portion of this lesson. The probing questions will be used during Learning from the Checkpoint.

2. What is the missing question?

- A How many books were on the bookcase to start?
- B How many shelves are there in the bookcase?
- C Who is Anna?
- D Which shelves did Anna take books from?

3. What could you do first to solve this problem?

- A Add $45 + 33 + 7$
- B Add $45 + 33$
- C Subtract $45 - 33$
- D Subtract $45 - 33 - 7$

4. What sentence answers the question correctly?

- A There are 85 books in the bookcase.
- B There are 78 books in the bookcase.
- C There are 26 books in the bookcase.
- D There are 71 books in the bookcase.

Assessment Resources, page 15

learning from the checkpoint



Remind the group that when students choose a wrong answer, it is usually because they have a misconception or have made a common mistake.

learning from the checkpoint

Talk about problems 1–4 with your class.
If you need to, correct your answers.

Assessment Resources, page 15

Present the examples that follow of common mistakes students might make in solving the problems in this checkpoint, and elicit students' thinking as you facilitate a group discussion.

- Now I will show you some mistakes that other students made when they solved these problems, and you will try to explain what the students were thinking that was not correct.

Ask questions similar to these:

- Why might another student choose <Answer choice letter> as the correct answer?
- What would you tell a student who made this mistake to help him understand the problem and how to solve it?
- How did you know that you should [subtract] to get the answer?



scaffolding for success

During the discussion, you may record on the board or chart paper to help the group follow the explanations students give. Students can then refer to both the students' explanations and your recording during the discussion.

Learning from Problem 1

The correct answer is **C**.



Incorrect answer choice: **D**

Possible misconception: The student notices that the picture is of a bookcase with two shelves, but does not look closely and recognize that the number of books that are shown do not match the problem.

Learning from Problem 2

The correct answer is **A**.



Incorrect answer choice: **D**

Possible misconception: The student might have gotten involved in the details of the story and forgotten to think through the story as a mathematics problem.

Learning from Problem 3

The correct answer is **B**.



Incorrect answer choice: **A**

Possible misconception: The student may not have recognized this as a two-step problem. Instead, the student thought that whenever you see three numbers, you should add them up.

Learning from Problem 4

The correct answer is **D**.



Incorrect answer choice: **B**

Possible misconception: If the student forgot to do the second step, she would get 78 as the answer.



reflection



When you have about 2 minutes left, stop the debug groups, even if they are not finished. Have students respond to the reflection prompt in the Student Book.

Checkpoint 1

7

checkpoint

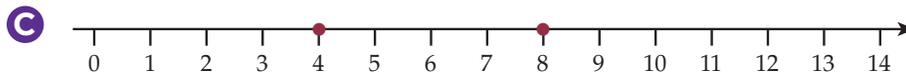
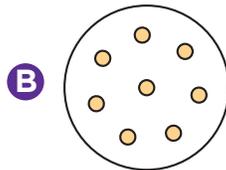
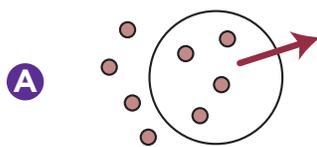
Solve the problems below. Circle your answers in your checkpoint lesson.

1. Mrs. Chi bought 25 pounds of clay for an art project. Later she decided that 25 pounds would not be enough, so she bought an extra 32 pounds of clay. How much clay did she buy altogether?



- A** 7 pounds **B** 82 pounds
C 57 pounds **D** 13 pounds

2. There were some birds in a tree. Four (4) flew away. Then there were 8 left. How many birds were in the tree to start with? Which math drawing best shows what happened?



3. There were 65 balloons at the school fair. During the day, some of the balloons popped. At the end of the day there were 42 balloons left. How many balloons popped during the day? What could you do to solve this problem?

- A** Add 42 and 65
- B** Subtract 42 from 65
- C** Multiply 65 by 42
- D** Divide 65 by 42

4. Anthony has 57 pennies in his bank. His brother has 19 more pennies than he does. How much money does his brother have?

- A** 66¢
- B** 42¢
- C** 38¢
- D** 76¢



learning from the checkpoint

Talk about problems 1–4 with your class.

If you need to, correct your answers.

Checkpoint 2

13

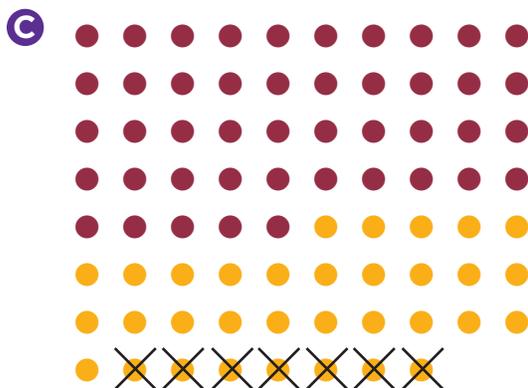
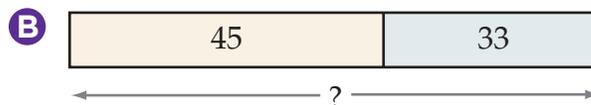
checkpoint

All of the problems in this lesson refer to the math story below.

- Read the story.
- Circle your answers in your checkpoint lesson.

There were 45 books on one shelf of a bookcase and 33 books on the other shelf.
Anna took 7 books from the bookcase to the book sale.
Now how many books are there in the bookcase?

1. Which math drawing matches the story?



2. What is the missing question?
- A** How many books were on the bookcase to start?
 - B** How many shelves are there in the bookcase?
 - C** Who is Anna?
 - D** Which shelves did Anna take books from?
3. What could you do first to solve this problem?
- A** Add $45 + 33 + 7$
 - B** Add $45 + 33$
 - C** Subtract $45 - 33$
 - D** Subtract $45 - 33 - 7$
4. What sentence answers the question correctly?
- A** There are 85 books in the bookcase.
 - B** There are 78 books in the bookcase.
 - C** There are 26 books in the bookcase.
 - D** There are 71 books in the bookcase.

learning from the checkpoint

Talk about problems 1–4 with your class.

If you need to, correct your answers.

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