

Peter wrote down a pattern of A's and B's that repeats in groups of 3. Here is the beginning of his pattern with some of the letters erased. Fill in the missing letters.

A B \_ A \_ B \_ \_ \_

## Scoring Guide

Solution:

A B B A B B A B B

### Score & Description

#### Correct

Correct response

#### Incorrect

Any incorrect response

In this question the student needed to fill in missing entries in a pattern of the letters "A" and "B." The student was told that the pattern repeats in groups of 3, and enough information was given for the student to find the one correct sequence.

### Correct - Student Response

- 1 Peter wrote down a pattern of A's and B's that repeats in groups of 3. Here is the beginning of his pattern with some of the letters erased. Fill in the missing letters.

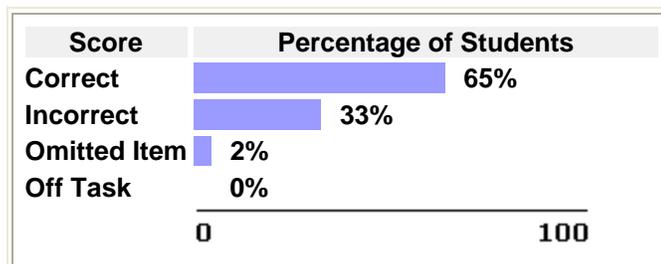
A B B A B B A B B

### Incorrect - Student Response

- 1 Peter wrote down a pattern of A's and B's that repeats in groups of 3. Here is the beginning of his pattern with some of the letters erased. Fill in the missing letters.

A B B A A B B A A

## 2003 National Performance Results



Note:

- These results are for public and nonpublic school students.
- Percentages may not add to 100 due to rounding.

**Mathematical Content Area:** *Algebra and functions*  
**Mathematical Ability:** *Problem solving*

## Mathematical Content Area

### *Algebra and functions*

This question measures algebra and functions. This content area extends from work with simple patterns, to basic algebra concepts, to sophisticated analysis. Students are expected to use algebraic notation and thinking in meaningful contexts to solve mathematical and real-world problems, addressing an increasing understanding of the use of functions. Other topics assessed include using open sentences and equations as representational tools and using the notion of equivalent representations to transform and solve number sentences and equations of increasing complexity.

## Mathematical Ability

### *Problem solving*

This question measures students' problem solving ability. Students demonstrate problem solving in mathematics when they recognize and formulate problems; determine the consistency of data; use strategies, data, models; generate, extend, and modify procedures; use reasoning in new settings; and judge the reasonableness and correctness of solutions. Problem solving situations require students to connect all of their mathematical knowledge of concepts, procedures, reasoning, and communication skills to solve problems.

	Description	Grade	Type	Difficulty
1	Complete a letter pattern	8th	Short Constructed Response	Easy