

## Dinosaur Models

Anna and Cody collect models of dinosaurs. Anna got 2 dinosaurs from her mother. She got 5 dinosaurs from her grandfather, and 3 dinosaurs from her friend.

Cody got 3 dinosaurs from his dad, 3 dinosaurs from his grandmother, and 4 dinosaurs from his brother. Anna and Cody think they have the same number of dinosaurs. Are they correct? Show your math thinking.

## Dinosaur Models

### Suggested Grade Span

Grades Pre K–2

### Grade(s) in Which Task Was Piloted

Grade 1

### Task

Anna and Cody collect models of dinosaurs. Anna got 2 dinosaurs from her mother. She got 5 dinosaurs from her grandfather, and 3 dinosaurs from her friend.

Cody got 3 dinosaurs from his dad, 3 dinosaurs from his grandmother, and 4 dinosaurs from his brother. Anna and Cody think they have the same number of dinosaurs. Are they correct? Show your math thinking.

### Alternative Versions of Task

#### *More Accessible Version:*

Anna and Cody collect models of dinosaurs. Anna got 2 dinosaurs from her mother. She got 2 dinosaurs from her grandfather, and 1 dinosaur from her friend.

Cody got 3 dinosaurs from his dad, 1 dinosaur from his grandmother, and 1 dinosaur from his brother. Anna and Cody think they have the same number of dinosaurs. Are they correct? Show your math thinking.

#### *More Challenging Version:*

Anna and Cody collect models of dinosaurs. Anna got 2 dinosaurs from her mother. She got 6 dinosaurs from her grandfather, and 4 dinosaurs from her friend.

Cody got twice as many dinosaurs from his dad than Anna did from her mother. Cody got half as many dinosaurs from his grandmother than Anna did from her grandfather. Cody got one more dinosaur from his brother than Anna got from her friend. Anna and Cody think they have the same number of dinosaurs. Are they correct? Show your math thinking.

## NCTM Content Standards and Evidence

### Number and Operation Standard for Grades Pre K–2

Instructional programs from Pre-Kindergarten through grade 12 should enable students to...

- Compute fluently and make reasonable estimates.
  - *NCTM Evidence:* Develop and use strategies for whole-number computations, with a focus on addition and subtraction.

- **Exemplars Task Specific Evidence:** This task requires students to find the total number of dinosaurs.

## Time/Context/Qualifiers/Tip(s) From Piloting Teacher

This is a medium length task. Many students have their own dinosaur collections that can be brought into school to be sorted, counted, and compared.

## Links

This task could link to a unit on dinosaurs which many students in primary grades study.

Children’s literature that would complement this task includes

Blumenthal, Nancy. “Count-a-Saurus”. New York: MacMillan Publishing Company / Aladdin Books, 1992. (ISBN 0-689-71633-8)

## Common Strategies Used to Solve This Task

Many students will draw the dinosaurs while others create charts or number sentences to compare the numbers of dinosaurs.

## Possible Solutions

### *Original Version:*

$2 + 5 + 3 = 10$  dinosaurs for Anna.

$3 + 3 + 4 = 10$  dinosaurs for Cody.

So they both had the same number of dinosaurs.

### *More Accessible Version:*

$2 + 2 + 1 = 5$  dinosaurs for Anna.

$3 + 1 + 1 = 5$  dinosaurs for Cody.

So they both had the same number of dinosaurs.

### *More Challenging Version:*

$2 + 6 + 4 = 12$  dinosaurs for Anna.

$4 + 3 + 5 = 12$  dinosaurs for Cody.

So they both had the same number of dinosaurs.

## Task Specific Assessment Notes

**General Notes:** This task requires students to find a method for determining and comparing sums. It is assumed that this task would not be given to students who know addition algorithms, as it would not require the student to utilize problem solving strategies.

**Novice:** The novice will demonstrate little or no understanding of the task. The student will not be able to represent the dinosaurs that belong to Cody and Anna, so accurate sums cannot be achieved, nor comparisons made.

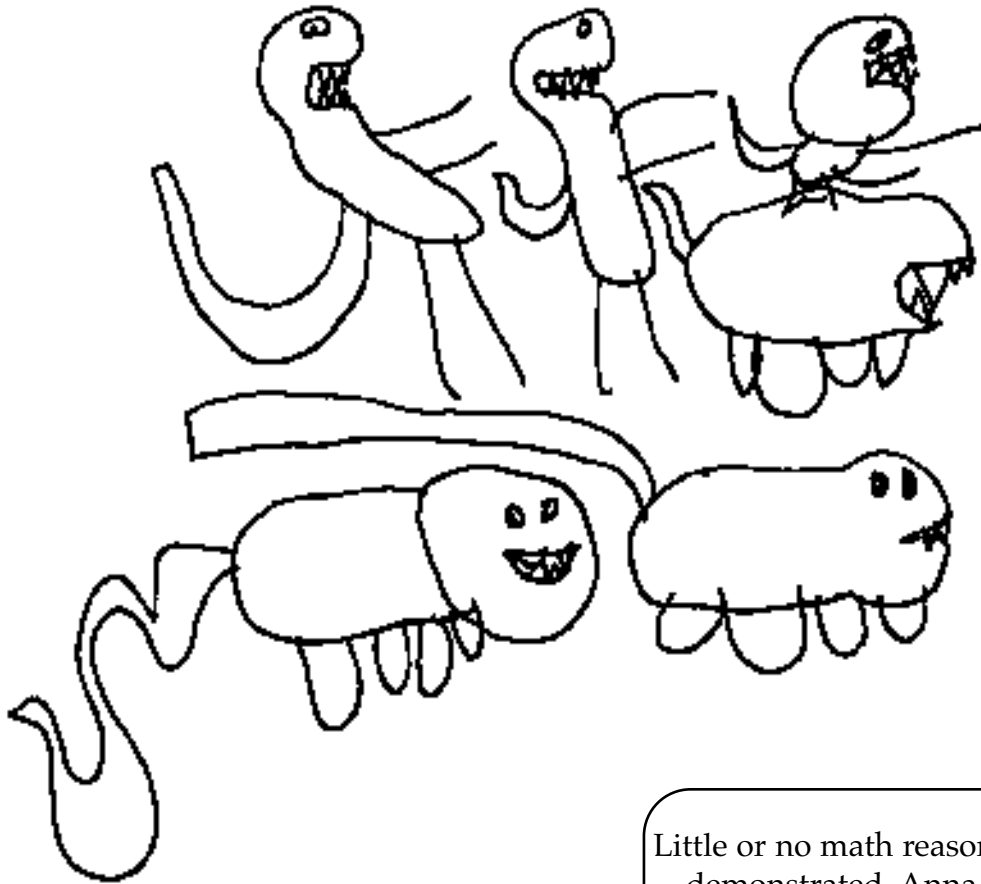
**Apprentice:** The apprentice will have a partially correct solution or a strategy that will work for solving only part of the task. The apprentice will be able to represent the dinosaurs, but will make a computation error that leads to an incorrect solution, or will make an error in translating the data presented in the task, so an incorrect sum is achieved.

**Practitioner:** The practitioner will achieve a correct solution to the task with supporting work utilizing problem solving and communication strategies.

**Expert:** The expert will not only achieve a correct solution, but will also utilize other good problem solving strategies such as creating a rule to solve the task, verifying the solution, or going above and beyond the task requirements such as finding the total number of dinosaurs, or identifying the greatest source and least source of dinosaurs.

### Author

This task was written by **Deb Armitage**, Pre K–8 Mathematics Assessment Consultant at the Vermont Department of Education. The task was piloted by teachers and students in Vermont.



Drawing has little or no relationship to the task, other than the theme of dinosaur.

Little or no math reasoning is demonstrated. Anna and Cody are not referred to, nor are the number of dinosaurs they each had.

Apprentice

This student achieves a partial solution.

anna 253  
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Cory 3 4

The number of dinosaurs Anna was given is clearly recorded.

Reference is made to Cory, but the list of numbers of dinosaurs given is incomplete

Practitioner



A correct answer is achieved.  
Work is clear and shown.

The student organizes and conveys  
the solution in a chart.

An awareness of audience is demonstrated. A correct answer is achieved.

Key  
1 is Dinosaur

yes  
Answer Cody  

it is even

Math language and representation are used to communicate.

answer 10 each 20 in all

The student extends the solution by finding the total number of dinosaurs.