

Bunk Bed

Grade K Operations & Algebraic Thinking

Topic: Decompose numbers less than or equal to 10 into pairs

Task Background

The task presents an opportunity for students to decompose the number 8 in multiple ways and identify the total number of different possible ways to decompose 8 (into whole numbers). This task also provides opportunities to model the number 8 with a variety of representations, such as dice, number frames, etc.

Content Standards

- » Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., $5 = 2 + 3$ and $5 = 4 + 1$).
- » Represent addition and subtraction with objects, fingers, mental images, drawings, sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

Practice Standards

- » Make sense of problems and persevere in solving them
Students persevere using multiple ways to decompose the number and try to determine the total number of ways possible.
- » Model with mathematics
Students create drawings (e.g., open number lines or other representations) or other representations to model the number and its decomposition.

Materials

Students can use paper and writing tools, concrete and/or virtual manipulatives such as the Number Rack (© The Math Learning Center), and/or a screen-recording app.

Bunk Bed

Shanna invited 7 friends to her birthday party. All 8 kids were on Shanna's bunk bed.

Some kids were sitting on the top bunk. Some kids were sitting on the bottom bunk.

Every time Shanna's dad looked at the bunk bed, the kids were in different places.

a) Show **1 way** the 8 kids may have been sitting on the bunk bed.

b) How many **different** ways could the 8 kids be sitting on the bunk bed?

Bunk Bed

Shanna invited 7 friends to her birthday party.

All 8 kids were on Shanna's bunk bed. Some kids were sitting on the top bunk. Some kids were sitting on the bottom bunk.

Every time Shanna's dad looked at the bunk bed, the kids were in different places.

- a) Show **1 way** the 8 kids may have been sitting on the bunk bed.
- b) How many **different** ways could the 8 kids be sitting on the bunk bed?

© 2017 Education Development Center, Inc. (EDC)



Bunk Bed

Shanna invited 7 friends to her birthday party.

All 8 kids were on Shanna's bunk bed. Some kids were sitting on the top bunk. Some kids were sitting on the bottom bunk.

Every time Shanna's dad looked at the bunk bed, the kids were in different places.

- c) Show **1 way** the 8 kids may have been sitting on the bunk bed.
- d) How many **different** ways could the 8 kids be sitting on the bunk bed?

© 2017 Education Development Center, Inc. (EDC)