# Ten Feet Apartment

There is an apartment building called The Ten Feet Apartment Building. The owner allows people and pets to rent apartments in the building, but each family (including pets) can only have a total of 10 feet living in its apartment.

Find the different combinations of people and pets that equal 10 feet.

Draw pictures and write or tell about your families.

**Grade Levels Pre-K-2**

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## Context

My first grade class had just finished making houses and drawing pets who lived in their houses. They then counted how many feet were living in their houses and wrote the number on the front door. The class had been learning to count by ones, twos, fives and 10s. The class came to the conclusion that counting by twos was an appropriate pattern to use when counting feet.

## What This Task Accomplishes

This task assesses students' knowledge of basic counting patterns and when to use the various counting patterns. It also assesses students' ability to apply reasoning skills and find many different solutions to a problem.

## What the Student Will Do

Most students started drawing combinations of stick people and animals in the folded squares of their 12 x 18 inch newsprint. Many drew, counted feet and either added on or erased if the total was not 10. Some students needed reminding of the task's goals.

## Time Required for Task

30 minutes

## Interdisciplinary Links

This task can be used with a social studies unit on families, houses, apartments buildings and/or cities.

## Teaching Tips

Hand out 12 x 18 inch newsprint and have children fold it two times. Tell them they can record each of their solutions in a different square. Remind them that they can use the front and back and ask for more paper. This will assist students in organizing their work. You may want to have students use pens or crayons, so that all of their decision making is recorded. If students erase work, their record of their reasoning may be erased along with it. A better strategy is to ask students to cross out work that is not correct, and write a note about why it did not work. Documenting what does not work is as valuable as documenting what does work. It may also be helpful to brainstorm a list of family members and pets for the students to choose from when solving the problem.

## Suggested Materials

- 12 x 18 inch newsprint
- Pencils
- Pens
- Crayons
- Manipulatives that can be used to represent feet

## Possible Solutions

five people
four people, one bird
three people, one four-footed animal (dog, cat, etc.)
three people, two birds
two people, one four-footed animal and one bird
two people, one insect
one person, one four-footed animal and two birds
one person, two four-footed animals
one person, one insect, one bird
one person, one spider
Etc., limited only by the children's imaginations

## Benchmark Descriptors

### Novice

The student does not understand the problem. The student is only able to obtain one correct solution. There is no evidence that the student is trying for 10 feet through the acceptance or rejections of any of his/her work.

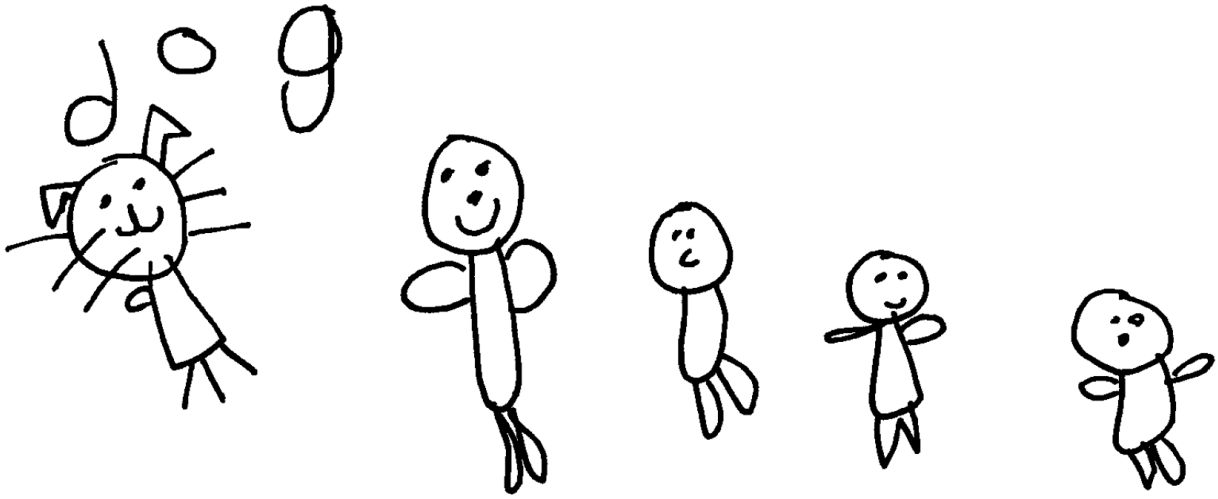
### Apprentice

The student has some understanding of what to do. The student draws people and animals that in two cases clearly add up to 10 feet. The rest of this student's work is disorganized so it is difficult to decipher the correctness of the remaining work. No math language is used, although the student attempts to label parts of his/her work.

**Practitioner**
This student understands the problem. The student has a plan and finds several combinations to equal the correct number of feet, and checks to make sure the pictures are correct, as indicated by recording the number 10 twice by each solution.

**Expert**
This student understands the problem and finds many different and unusual combinations of people and animals. The student explains his/her solution with pictures, and ideally with number sentences.

## Novice



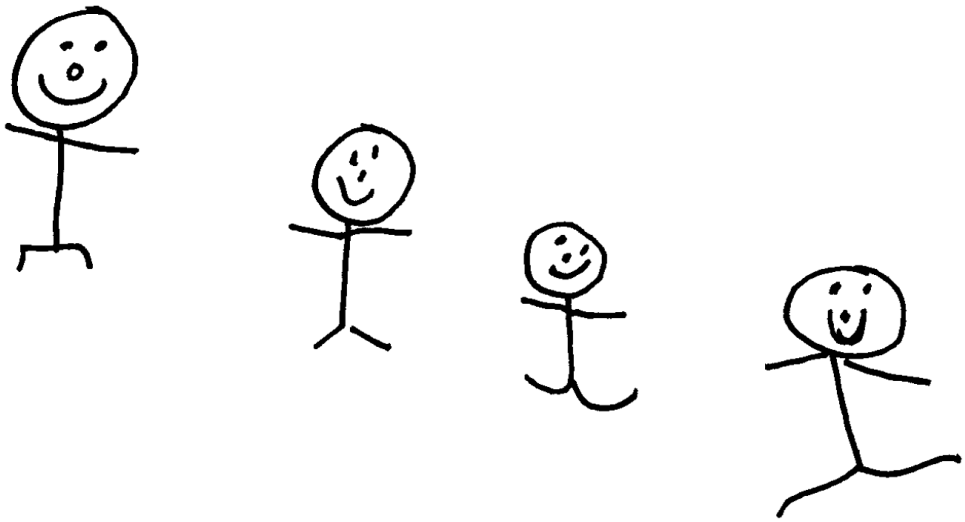

There is no evidence that the student is trying for ten.


**Ten Feet Apartment**

## Novice

This is the student's only correct solution.

No math language is present.

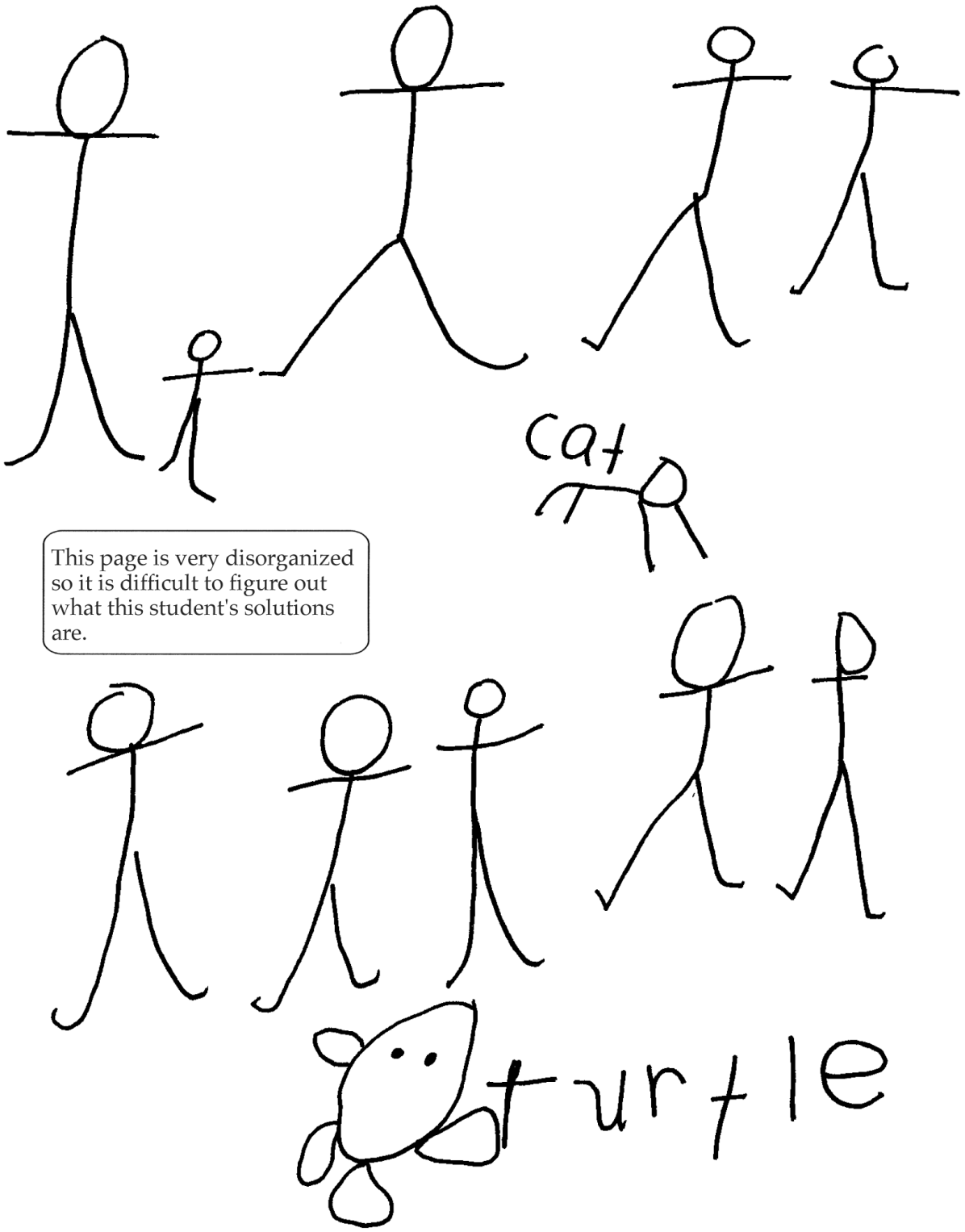


**Ten Feet Apartment**

## Apprentice

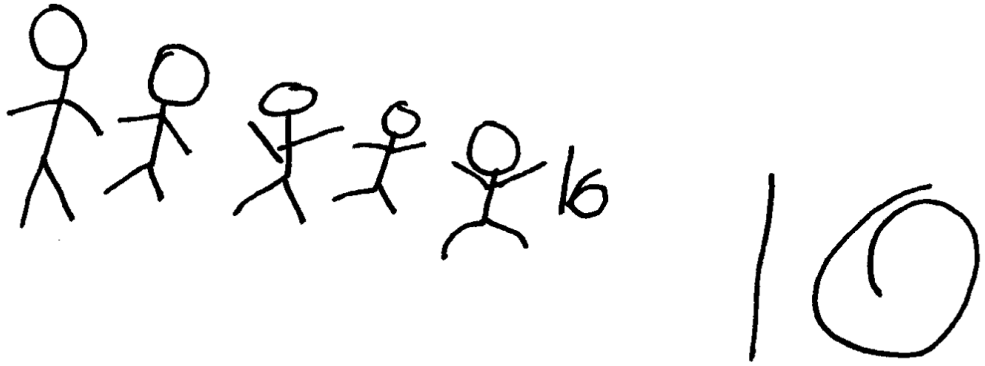

**Ten Feet Apartment**

## Apprentice

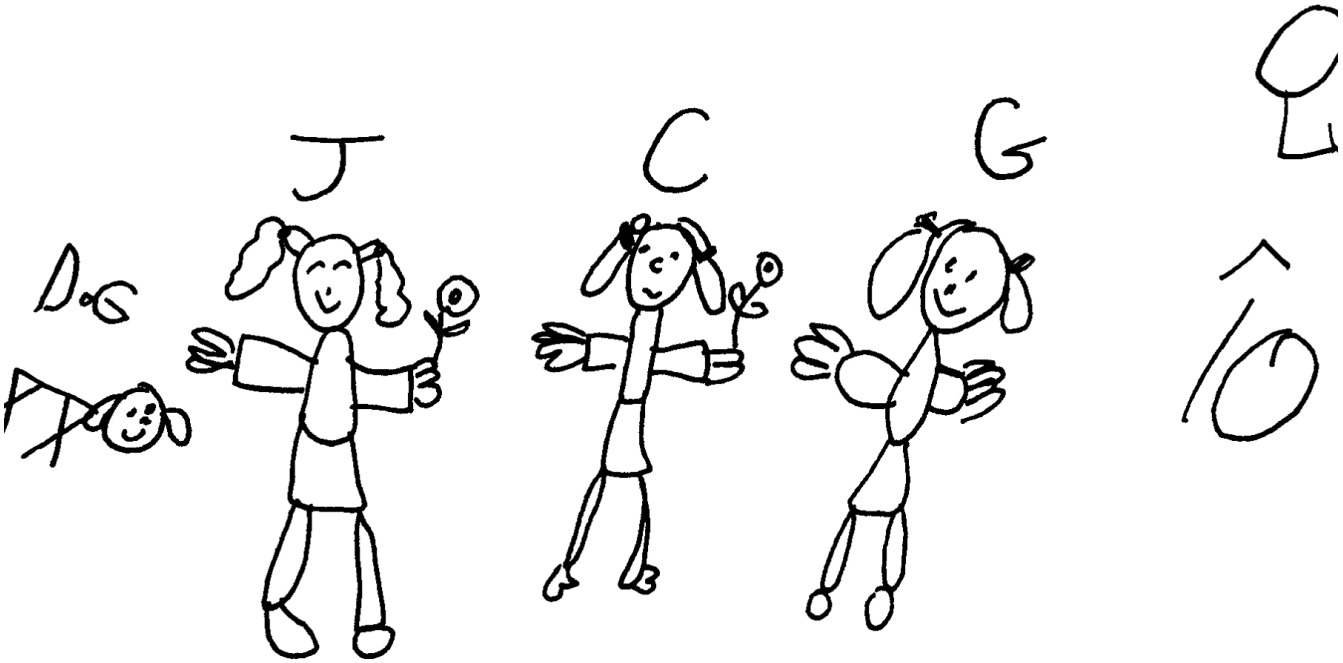



**Ten Feet Apartment**

## Practitioner

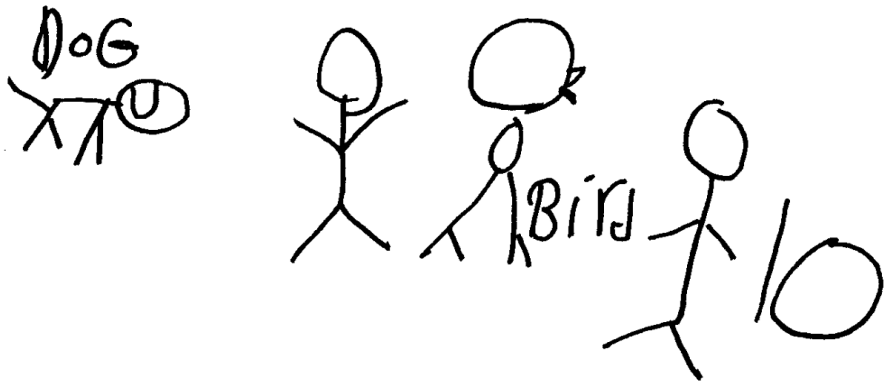



This student obtains four correct solutions, although two are quite similar. The student erased one person too many here showing good reasoning.

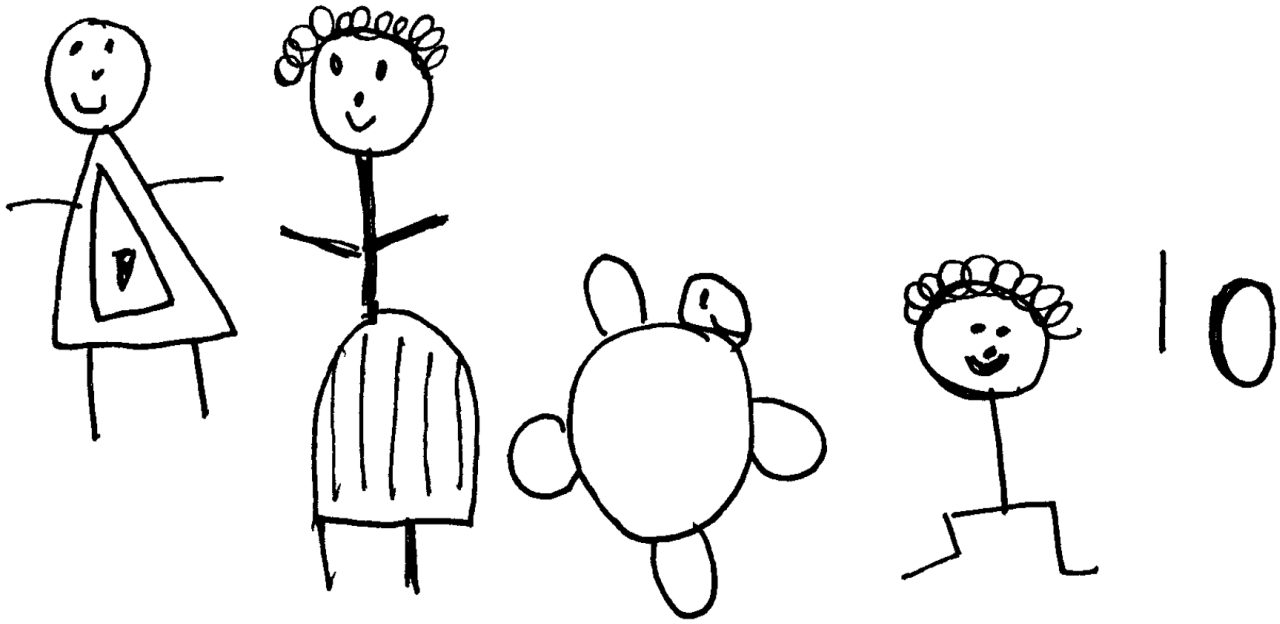



**Ten Feet Apartment**

**Practitioner**

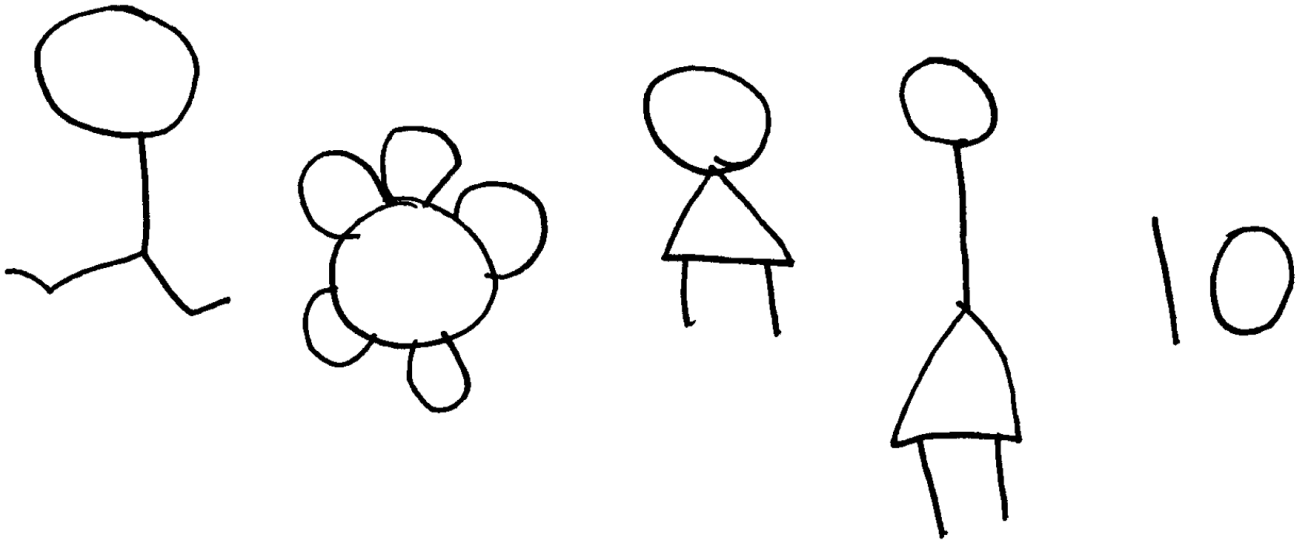



## Expert




The student indicates each time the need for "10".

The student is able to see how 10 can be reached in a variety of ways.



## Expert