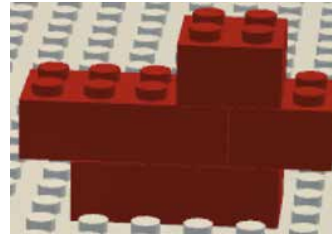
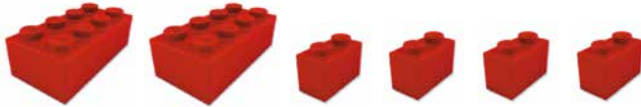


Name \_\_\_\_\_

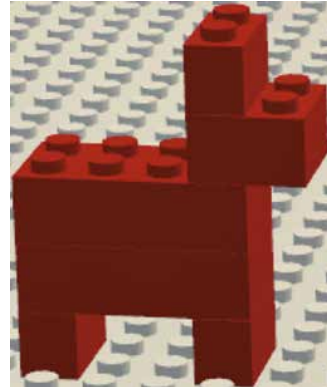
## DUCK AND DOG PRODUCTION

The LEGO Pets Company makes ducks and dogs, as shown in the figures below. The company uses 2 large ( $2 \times 4$ ) and 4 small ( $1 \times 2$ ) bricks to make 1 duck, and 2 large and 5 small bricks to make 1 dog.

Two  $2 \times 4$  and four  $1 \times 2$  LEGO bricks are used to make 1 duck.



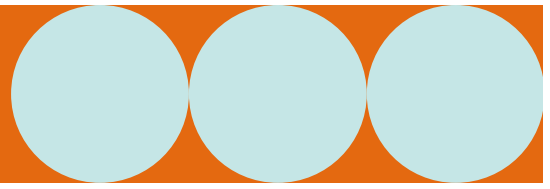
Two  $2 \times 4$  and five  $1 \times 2$  LEGO bricks are used to make 1 dog.



The profit on a duck is \$18, and the profit on a dog is \$21. LEGO Pets has 6 large and 13 small bricks available each hour. To generate the most profit, LEGO Pets must find out how many ducks and how many dogs the company should produce in one hour.

Ducks	Dogs

# activity sheet (continued)



Name \_\_\_\_\_

1. Using 6 large and 13 small LEGO bricks, find all possible combinations of ducks and dogs that the company can make. Use the table on the previous page to record your combinations.
2. After you have figured out all possible combinations, explain how to determine which combination will generate the most profit without actually computing each combination.
3. What will be the greatest profit? \_\_\_\_\_
4. Joe thought that producing only dogs would generate the most profit. Do you agree? Explain why or why not.
5. Suppose the company could get 1 more large brick each hour. Would that allow LEGO Pets to generate more profit? Explain.
6. Suppose the company could get 1 more small brick each hour. Would that allow LEGO Pets to generate more profit? Explain.

LEGO Pets has had some success, so they decide to make more animals. To make more animals, the company has 16 large and 31 small bricks available.

7. Find how many ducks and how many dogs LEGO Pets should make to generate the most profit. How much profit is that? (Use a spreadsheet if available.)
8. Is there any value to getting 1 more large brick each hour? Explain.
9. Is there any value to getting 1 more small brick each hour? Explain.