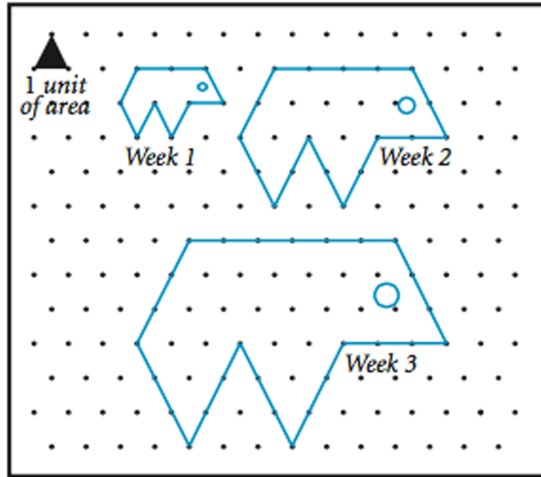


# 17. More Dilation: Billy Bear Grows Up

First & Last Name: \_\_\_\_\_ Class: \_\_\_\_\_



Arnold takes care of Billy Bear at the Dotty Zoo. Billy Bear is growing up fast. Just look at how quickly he has grown over the first three weeks! By Week 2, Billy grew by a scale factor of 2. By week 3, Billy had increased his size by a scale factor of 3. Assume that this trend continues: In Week  $n$ , Billy has increased his size from the original by a scale factor of  $n$ .

1. On isometric dot paper, redraw Billy Bear at Week 3 and draw Billy Bear at Week 4.
2. Copy and complete the table below with the perimeter and area of Billy Bear at each week. Arnold put in data for the first two weeks. Draw more images of Billy if needed.

Week:	1	2	3	4	5	6	7	8
Perimeter Units:	9	18						
Area Units:	7	28						

3. If Billy keeps growing like this, what will his perimeter and area be after 20 weeks?

4. If Billy grows like this for  $n$  weeks, what will his perimeter and area be?

5. (Challenge) If a pre-image with area  $A$  is dilated with scale factor  $k$ , what is the area of the image?

# Isometric Dot Paper

