

# Exponents Investigation

MPM1D

Jensen

One day Sammy decided to try a new place for lunch. He went to a new restaurant called Barney's Burgers. He loved the food so much that when he got back to school he told two of his friends. Suppose that this trend continues and every day each new customer tells two new friends at school about Barney's Burgers. How many new customers will Barney get each day?

**a) Copy and complete the chart using your knowledge of exponents**

Day	New Customers	Expanded Form	Power
1	2	2	$2^1$
2	4	$2 \times 2$	$2^2$
3			
4			

**b) Use this model to determine how many new customers Barney should expect on Day 7. Show your work.**

**c) Use this model to determine how many new customers Barney should expect on Day 14. Is this answer realistic? Why or why not?**

**d) Suppose that each new customer told three friends instead of two, and that this trend continued**

**i) How many new customer should Barney expect after 2 days?**

**ii) How many new customer should Barney expect after 4 days?**