

Evelyn Mears – North Albany Middle School

Task name – Otto’s Fish Tank

Core Math – Understanding exponential growth

Strands – Calculations and Estimations, Algebraic Relationships, grades 6-8

Level - Middle/High

Task Implementation: Apply proportional reasoning, understand and express exponential growth.

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Bippy went to the pet store and bought a fish he named Otto. He took Otto home and put him in a 55 gal. fish tank. Otto looked hungry, so Bippy fed him some fish food. Otto still looked hungry, so he fed Otto some more. A while later Bippy looked at Otto and thought he STILL looked hungry, so Bippy fed Otto all of the rest of the food in the can. A short while later, to Bippy’s surprise, there were 2 Ottos in the tank.

On the following day, to Bippy’s horror, there were 4 Ottos. When the number of fish doubled again the next day, he began to worry that his fish tank might run out of space. He called the store and found that he could keep 2 fish for every 5 gallons of water.

Please help Bippy and answers to these questions:

- 1. How many fish can Bippy keep in his tank?**
- 2. If he bought the Otto on Oct. 1, on what date will his tank be too small to hold all of the fish?**
- 3. Use exponents to tell how many fish Bippy had on Oct. 12.**
- 4. Use exponents to tell how many fishy Bippy had on Halloween.**
- 5. How many fish will Bippy have on his next birthday, August 12, 2008? (Explain in complete sentences and use exponents to express this answer.)**
- 6. Graph Otto’s growth for 5 days.**