

# College Algebra: A Recipe for Success

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# College Algebra at VCU

- College Algebra is the lowest level nonterminal mathematics course offered at VCU.
- It is taken by over 1500 students per year.
- We offer approximately 35 sections in the fall and 20 in the spring

#### Reformulation

- Previously we ran large, traditional lectures
- Piloted new format starting in 2004
- Since 2008, all sections are in modeling format
  - use real world data
  - long-term student projects
  - active student engagement
  - extensive group work

# **Additional Support**

- Professional Development
  - 20+ instructors/adjuncts
  - Pre-semester training
  - Weekly meetings
  - Semester workshop
- Stretch Sections
  - Low placement test scores
  - Repeat students
  - Extra class time
  - Strict attendance policy

### Improved Student Performance

- The DFW rate was reduced from 38% in traditional classes to 22% in the modeling sections.
- Even though more students completed the modeling course, they were more successful in subsequent courses than students who completed the traditional course.

# Motivating Functions with Data

Weight (pounds)	19	19.5	20	20.5	21	22	22.5	23.5	24
Height (inches)	10.35	10.3	10.25	10.2	10.1	9.85	9.8	9.7	9.6

In BMX dirt-bike racing, jumping high or "getting air" depends on many factors: the rider's skill, the angle of the jump, and the weight of the bike. Here are data about the maximum height for various bike weights.

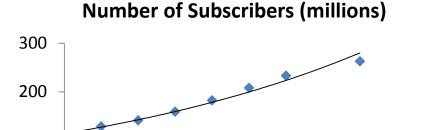
- Plot the data in your calculator.
- Is there a positive, negative, or no relationship between bike weight and jump height? Explain your answer.
- As the weight increases, the maximum height \_\_\_\_\_.
- Find the slope or rate of change using the first and last points given. Interpret the slope in terms of the real situation.

# Motivating Logarithms

100

0

Year	Number of Subscribers (millions)				
2000	109.5				
2001	128.4				
2002	140.8				
2003	158.7				
2004	182.1				
2005	207.9				
2006	233				
2008	262.7				

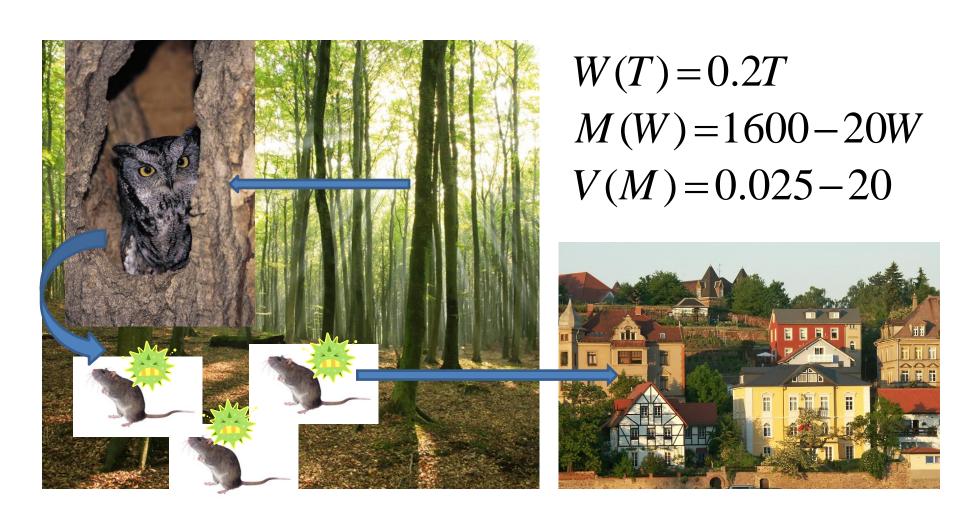


Source: CTIA-The Wireless Association

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- Make a plot of the data
- Model it with an exponential function
- When will subscribers reach 300?
  - Solved graphically by finding the intersection of function with y=300

### **Motivating Function Composition**



#### **Contact Information**

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We are happy to share materials.