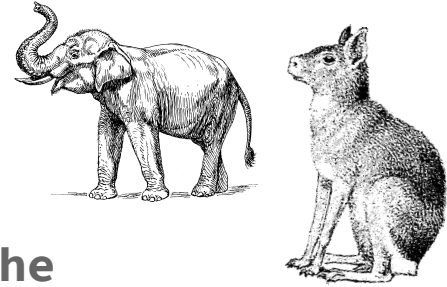


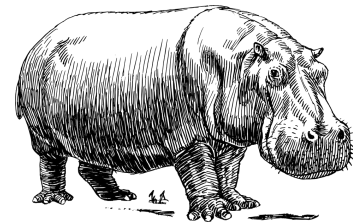


**Biologist**

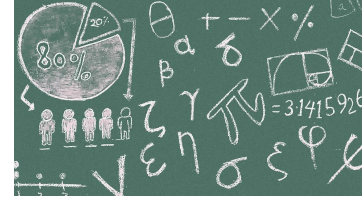
# WHAT DO BIOLOGIST DO?



- ❖ Study **humans, plants, animals, and the environment** in which we live in.
- ❖ They are the students of the world, **interested in learning from every facet of life.**
- ❖ **Study life to uncover its secrets** and to find ways to solve problems, such as finding a cure for a disease.
- ❖ Most specialize in **zoology** or **microbiology.**



# USAGE OF MATH



Biologists use math as they plot graphs to help them understand equations, run simple numbers through computers, and analyze protein sequences and structures.

“...a lot of mathematics is needed to take the seismic measurements and the physics equations and turn them into usable images which can be used by people drilling oil wells and trying to produce oil in an economically and environmentally sensible way” states Nick Bennett.—PhD in Mathematics

Types of math Biologists use: **College Algebra, Geometry, Trigonometry, Calculus I and II, and Statistics**

# MATH PROBLEM

Out of a species of 100 African elephants, what is the percentage of elephants that would have large ears?

Given allele frequencies (how often a gene appears):  
P(dominant or heterozygous)=74.4% Q(recessive)=25.7%

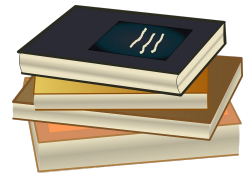
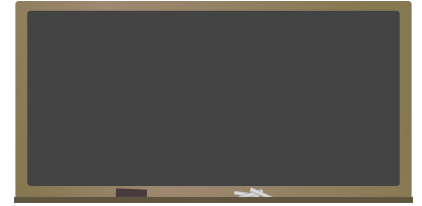
Use the Hardy-Weinberg Equation:  $p^2 + 2pq + q^2 = 1$

$p^2=55.3%$   $2pq=38.1%$   $q^2=6.6%$

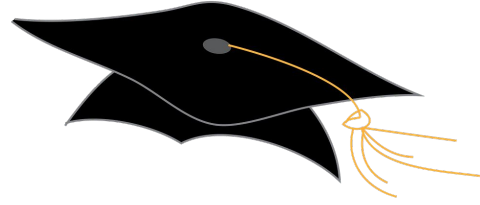
Conclusion: 93.4% of the African elephants will have big ears

# EDUCATION

- ❖ A Ph.D. degree usually is necessary for independent research, industrial research, and college teaching, as well as for advancement to administrative positions. A master's degree is sufficient for some jobs in applied research, product development, management, or inspection; it also may qualify one to work as a research technician or a teacher. The bachelor's degree is adequate for some non-research jobs.



# EDUCATION



- ❖ **High School**: take science course like **biology, chemistry, and mathematics**
- ❖ **Biological science majors** usually study allied disciplines such as **mathematics, physics, engineering, and computer science.**
- ❖ Length of studies: 4 years for Bachelor's Degree (in college), 2 years for a Master's Degree, and 4 to 7 years for a PhD

<http://weusemath.org/?career=877-2>