







Feeling Fields



Inactive hair follicles are now electric field sensors.































Sharks use their electric sense to detect magnetic fields. • A shark is sensitive to a potential difference of 5 nV. • The shark's head is 0.60 m wide, and it swims at 2.0 m/s. What is the magnitude of the smallest field variation that the shark could detect? $\Delta V = v(\Delta B = 5 \times 10^{-9} \text{ V})$

 $\Delta B = \frac{5 \times 10^{-9} \text{ V}}{vl} = \frac{5 \times 10^{-9} \text{ V}}{(2.0 \text{ m/s})(0.60 \text{ m})} = 4.2 \text{ nT}$



















Design an experiment:

How would you prove that sea turtles use the dip angle to determine their latitude?



