

# Identifying the Relationship Between Nest Architecture and Strength

Colleen Reed, Southborough MA

## Research Question

How do the diameter, orientation, and location of the materials within the bird nest influence the overall load strength of the nest?

## Hypothesis

The architecture of the nest will have a significant influence on the strength of the nest.

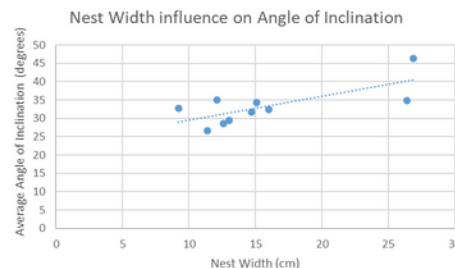
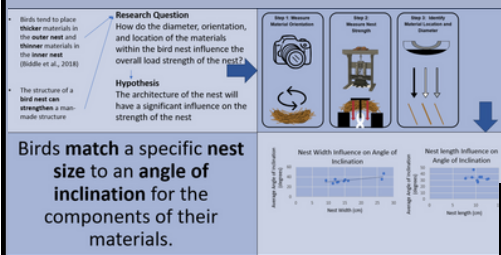


Figure 1: The relationship between the width of the nest and the average angle of inclination. A multiple regression gave a p-value <.05

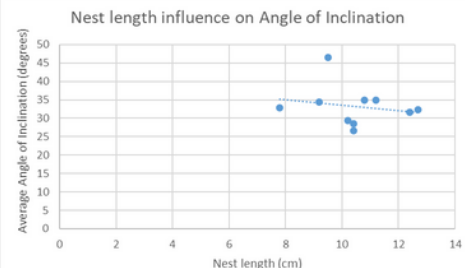
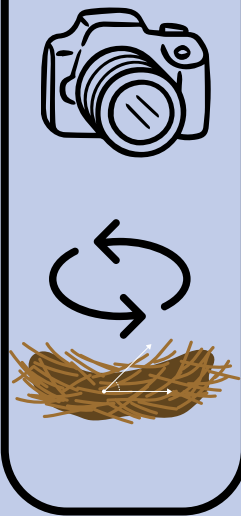


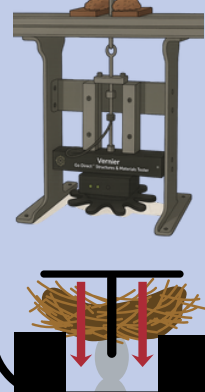
Figure 2: The relationship between the length of the nest and the average angle of inclination. A multiple regression gave a p-value <.05

Birds match nest size to the angle of inclination of their materials.

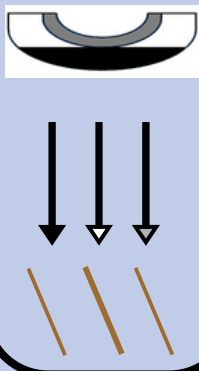
### Step 1: Measure Material Orientation



### Step 2: Measure Nest Strength



### Step 3: Identify Material Location and Diameter



The data thus far suggests that cup length and width have a significant influence on the inclination of materials within the nest. More specifically, that the angle of inclination increases as Nest Width increases and that it decreases as the length increases. The significant relationship between angle of inclination and length and width suggests an evolutionary tendency for birds to match a specific size of their nest to an angle of inclination for the components of their materials.