

# Lab: Peppered Moth Simulation

## BIOLOGY: CHAPTER 10-PRINCIPLES OF EVOLUTION

### Objectives:

- Describe the importance of coloration in avoiding predation
- Relate environmental change to changes in organisms
- Explain how natural selection causes populations to change

### Materials

- 8½" x 11" sheet dark background
- 8½" x 11" sheet light background
- Forceps
- Clock with second hand
- 30 light circles (made with hole punch)
- 30 dark circles (made with hole punch)



**Purpose:** In this lab, you will simulate how predators locate prey in different environments. You will analyze how color affects and organism's ability to survive in certain environments.

**Background:** The usual form of the peppered moth *Biston betularia* in northern Europe has a light "peppered" pattern of coloration. The moth rests on tree branches and its color pattern **camouflages** it against predatory attack. The camouflage only works against the right background: birds are more likely to eat poorly camouflaged moths, which therefore have a lower **fitness**.

The light coloration of tree branches is mainly caused by lichens that grow there. Smoke pollution in the industrial revolution in the UK killed these lichens near to industrial areas, leaving tree branches black. At about this time, around 1830, a '**melanic**' form of the peppered moth becomes increasingly common in contemporary moth collections. The melanic form is camouflaged on dark tree branches. Through the 19th century, the melanic form increased in frequency until, near industrial regions, it was the normal type of the moth. The increase was almost certainly driven by natural selection.

The moths satisfy all four conditions for natural selection:

- they reproduce;
- their color pattern is inherited;
- there is variation in their color patterns;
- the different forms have different fitnesses.

Before you begin the lab, complete the hypothesis below:

**Hypothesis:** If the color of the prey matches the background color then

# Peppered Moth Simulation Lab Answers

**Thomas Griffiths**

A red circular graphic with a gradient, appearing as a semi-circle or a partial circle, located to the right of the name Thomas Griffiths.

## **Peppered Moth Simulation Lab Answers:**

## Unveiling the Energy of Verbal Artistry: An Emotional Sojourn through **Peppered Moth Simulation Lab Answers**

In a world inundated with screens and the cacophony of instantaneous conversation, the profound energy and emotional resonance of verbal beauty usually disappear in to obscurity, eclipsed by the constant barrage of noise and distractions. However, set within the musical pages of **Peppered Moth Simulation Lab Answers**, a interesting perform of literary elegance that pulses with fresh thoughts, lies an unforgettable trip waiting to be embarked upon. Composed by way of a virtuoso wordsmith, that exciting opus books viewers on a mental odyssey, delicately exposing the latent possible and profound affect stuck within the delicate web of language. Within the heart-wrenching expanse of the evocative examination, we shall embark upon an introspective exploration of the book is key themes, dissect their charming publishing design, and immerse ourselves in the indelible impact it leaves upon the depths of readers souls.

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