Course introduction

Introduction

Thinking conceptually

The cell theory

Doing biology

Outline

Introduction
- Ground rules

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- Example: cards and drinks
- Logical inference

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Algebra

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Hockey

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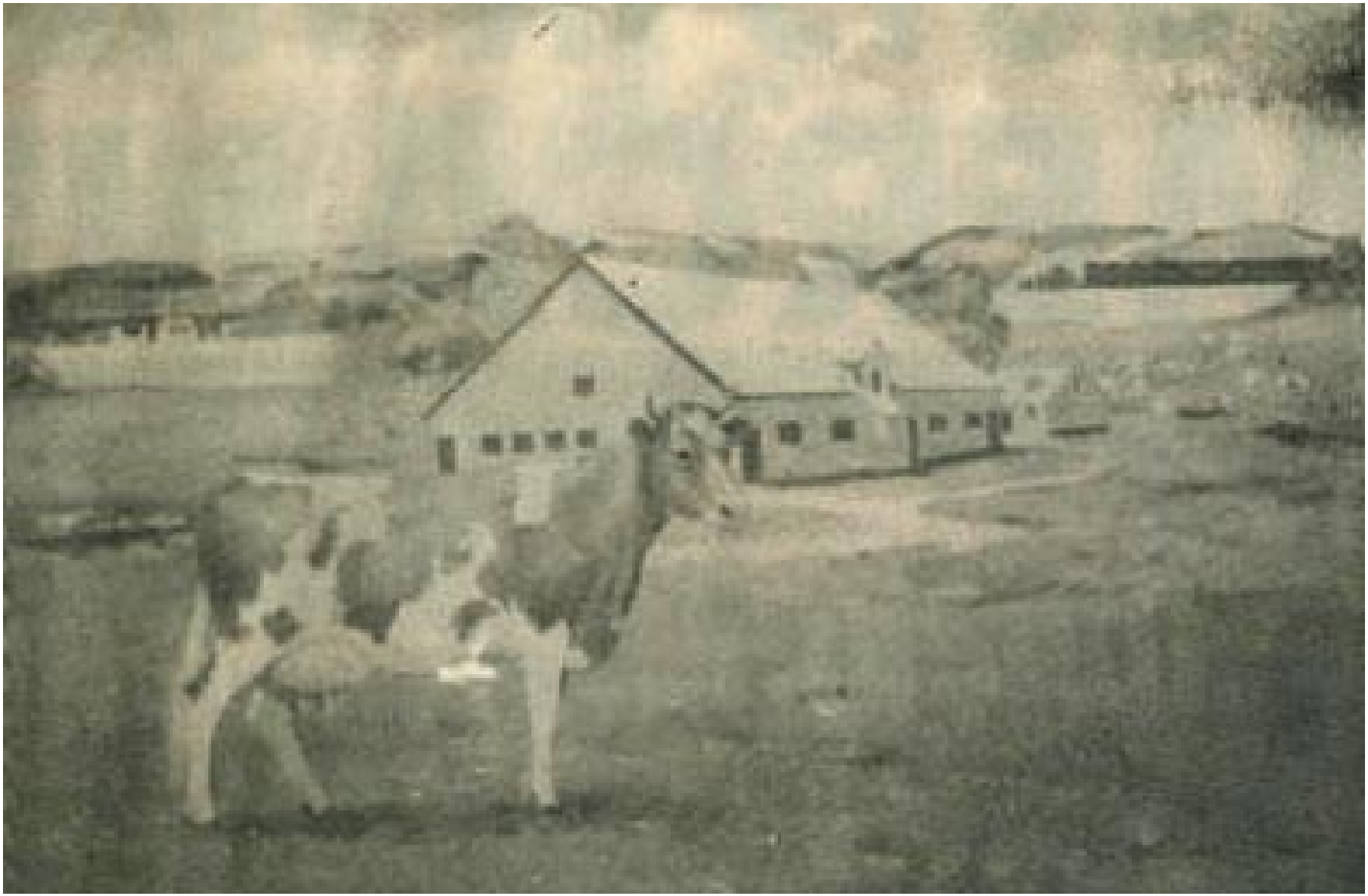

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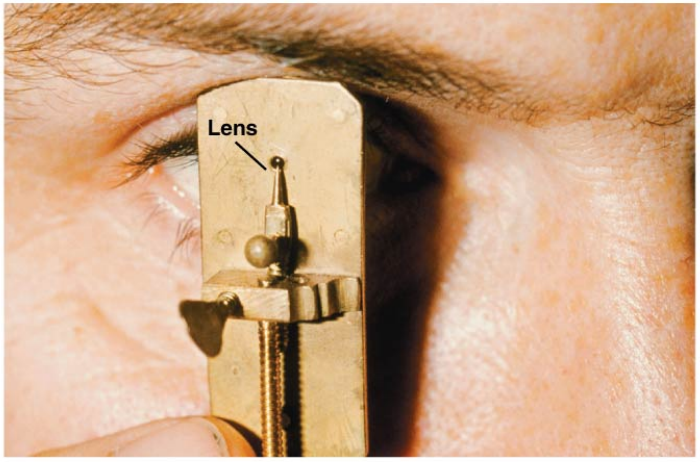

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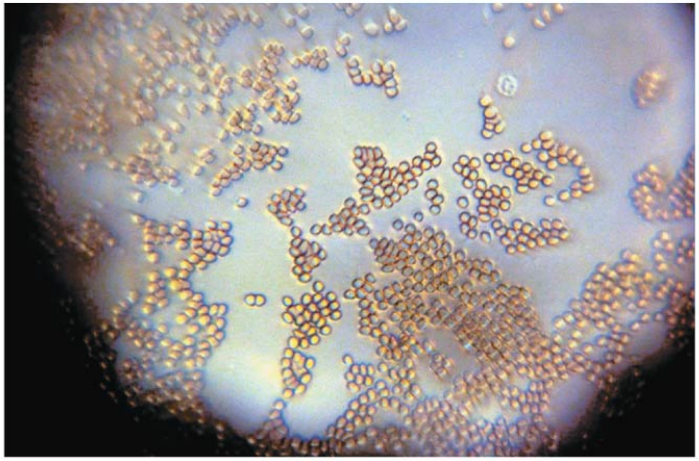

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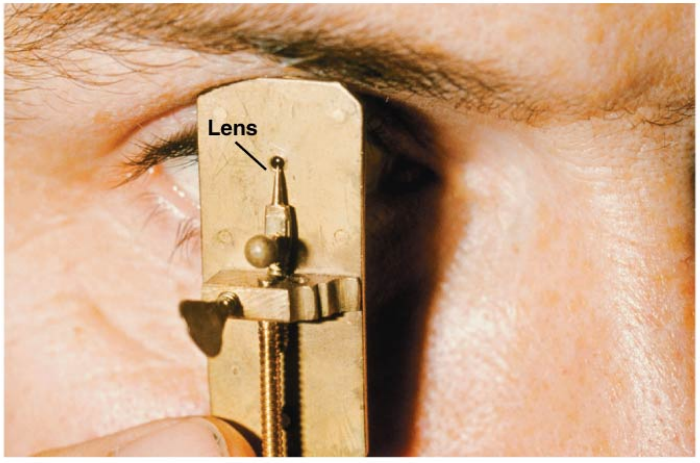

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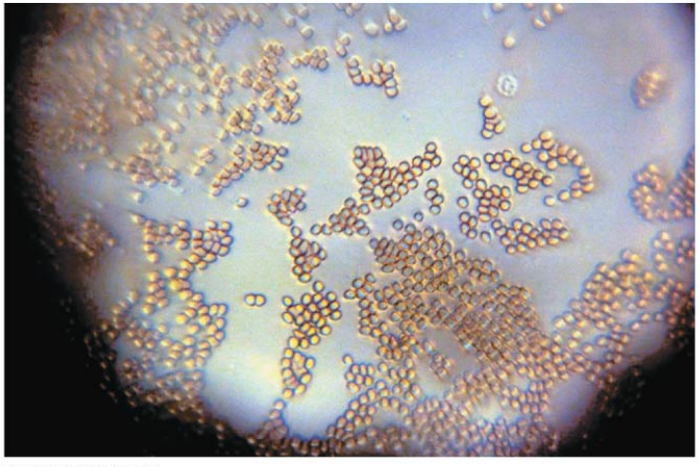

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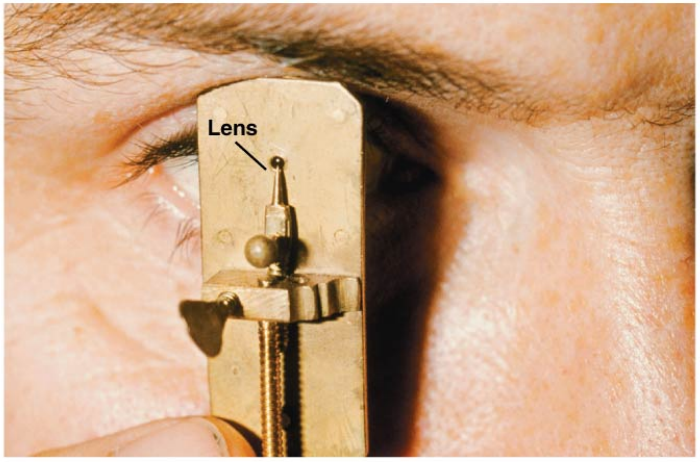

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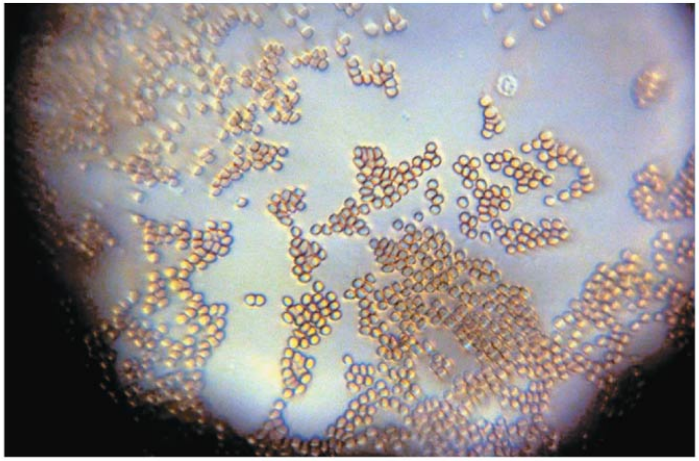

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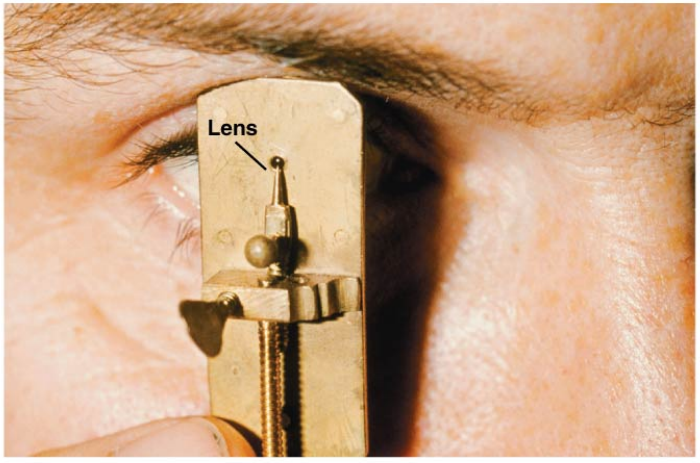

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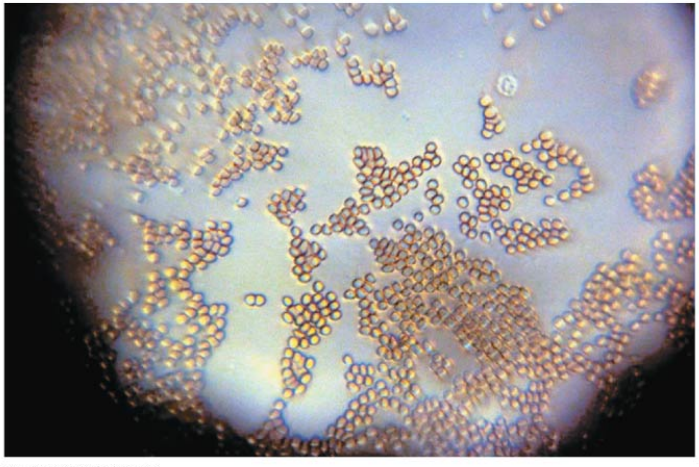

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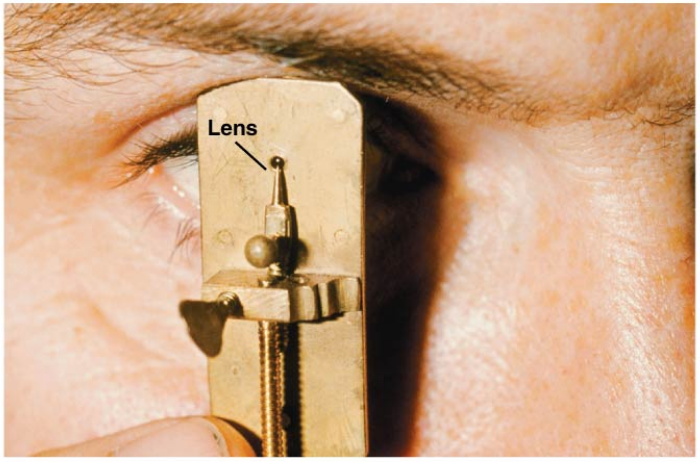

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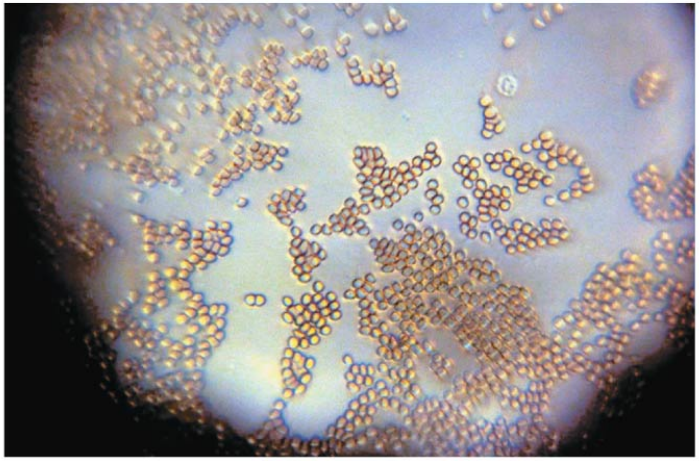

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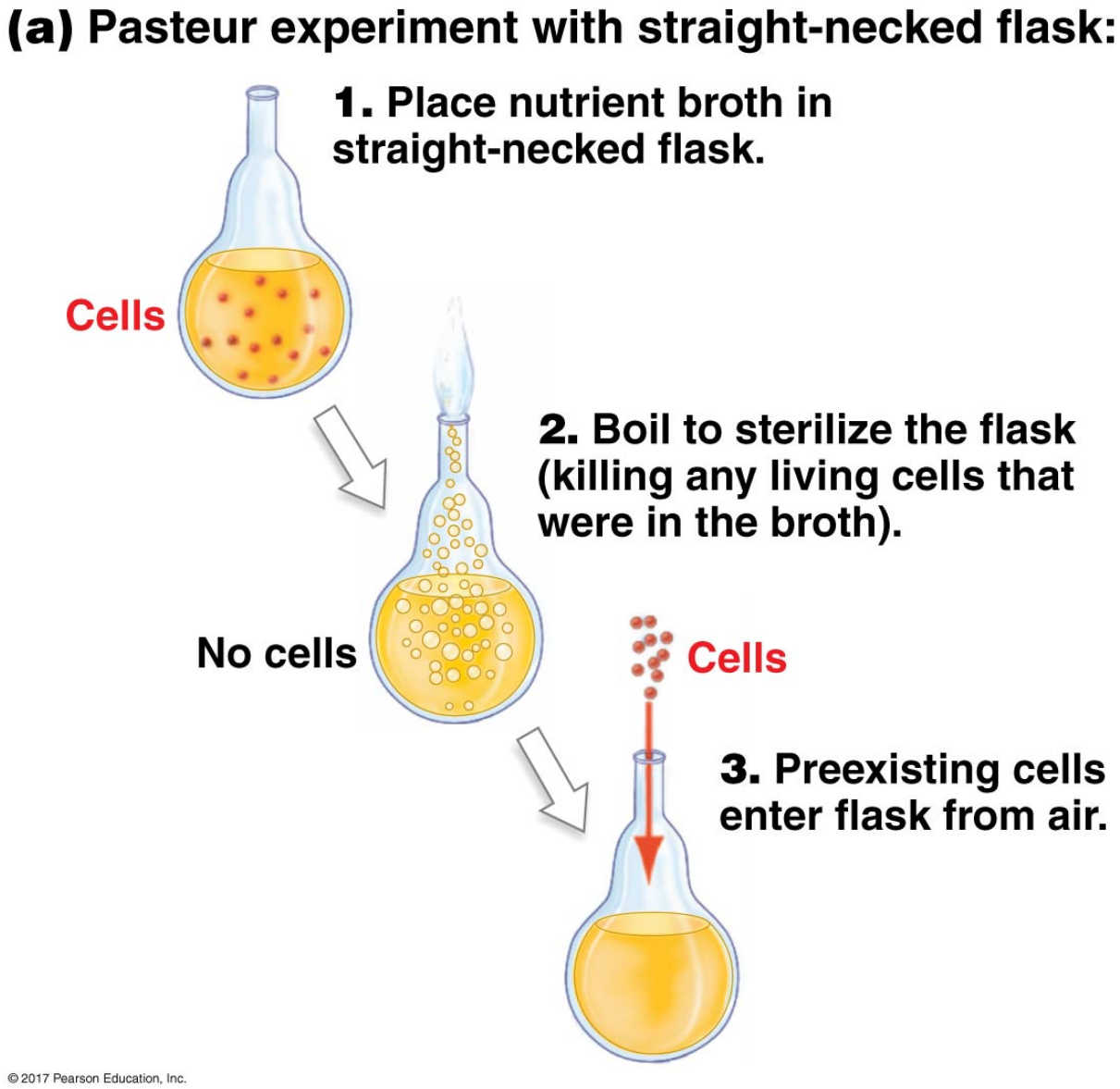

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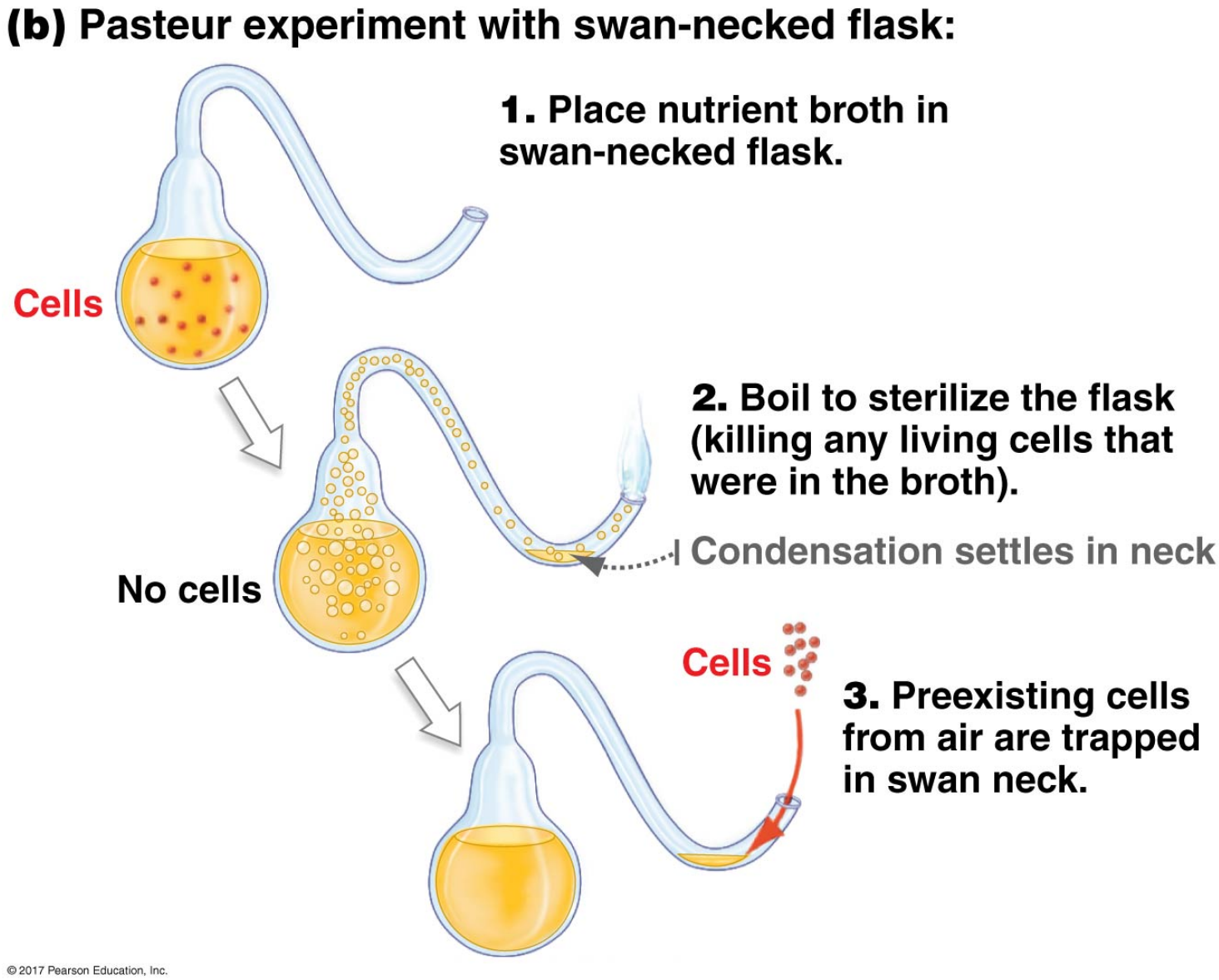

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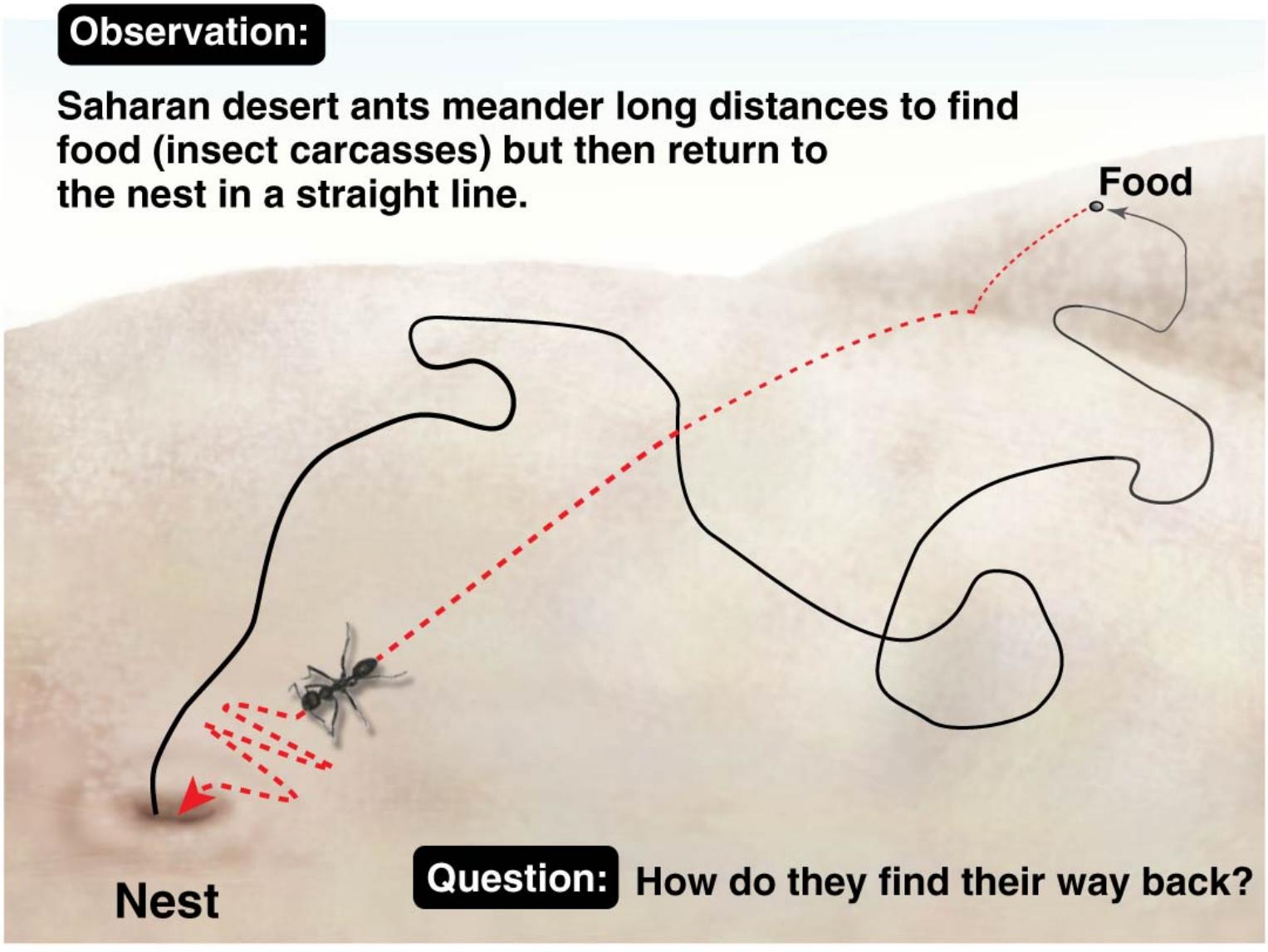
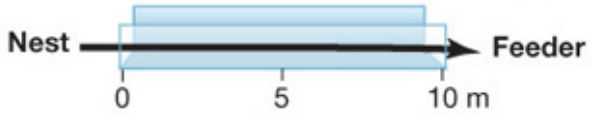


Ant navigation

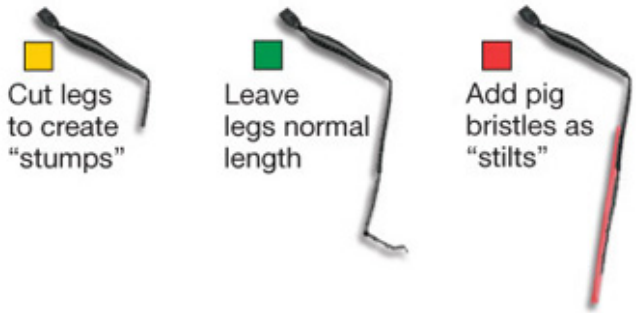
EXPERIMENT

EXPERIMENTAL SETUP (TEST 1):

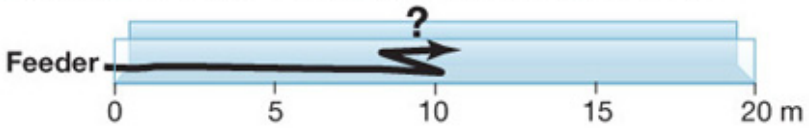
1. Ants walk from nest to feeder. Seventy-five ants are collected.



2. Manipulation of legs. Three treatments, 25 ants each.



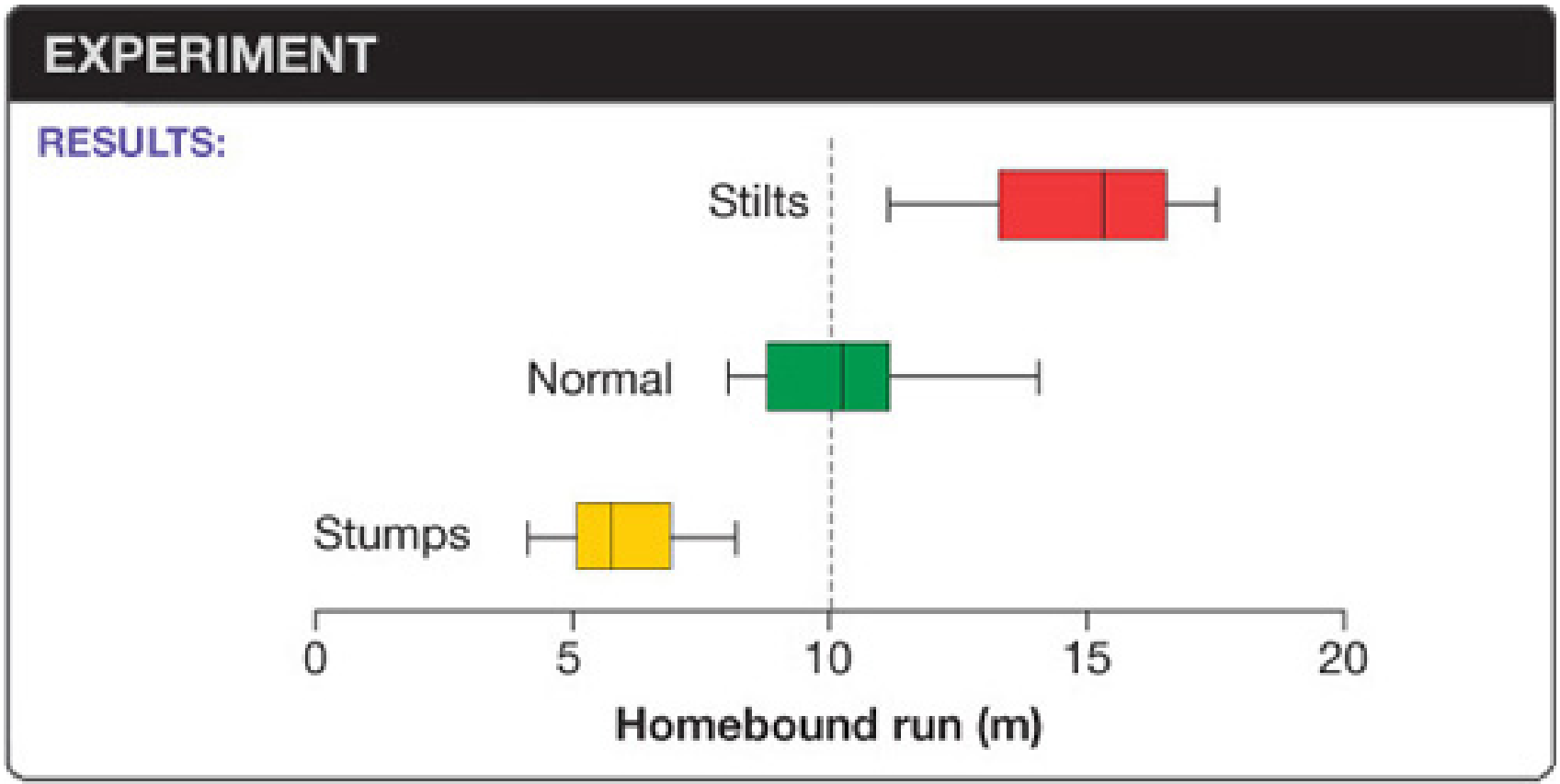
3. Ants return "home" from feeder and look for nest hole.



PREDICTION:
Ants with stilts will go too far; ants with stumps will stop short.

PREDICTION OF NULL HYPOTHESIS:
No differences among the 3 groups.

Ant navigation



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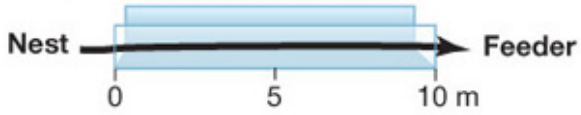
EXPERIMENTAL SETUP (TEST 2):

4. The three treatments of ants walk from nest to feeder again.



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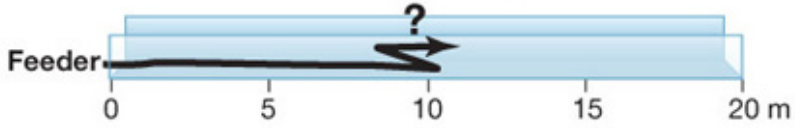


Stilts make leg length and stride length longer

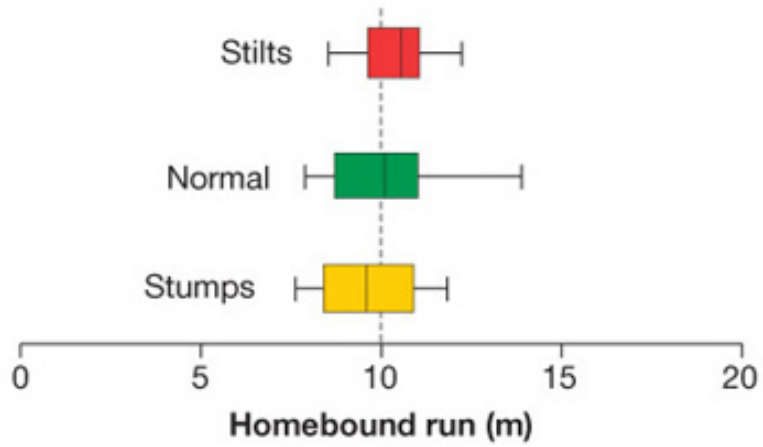
PREDICTION:
All three groups will start looking for nest after walking 10 m.

PREDICTION OF NULL HYPOTHESIS:
No difference from the result in Test 1.

Ant navigation

EXPERIMENT

RESULTS:



CONCLUSION: Desert ants use information on stride length and number to calculate how far they are from the nest.

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