

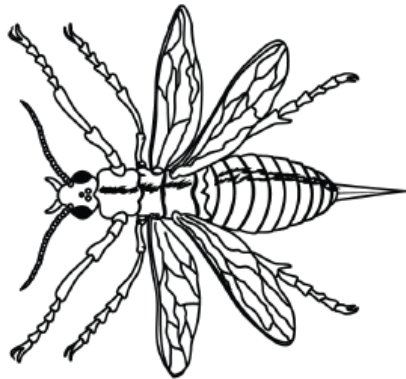
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Genetic Variations Quiz

USE THE FOLLOWING DICHOTOMOUS KEY FOR THE NEXT TWO QUESTIONS

Dichotomous Key for Insect Classification

1. a. One pair of wings.....go to 2
b. Two pairs of wings.....go to 3
2. a. Hind wings reduced to tiny knobs.....Diptera
b. Hind wings not reduced to tiny knobs.....go to 6
3. a. Front and hind wings have similar texture.....go to 4
b. Front and hind wings do not have similar texture.....go to 6
4. a. Front and hind wings similar in size and shape.....go to 5
b. Front and hind wings not similar in size and shape.....go to 7
5. a. Antennae are short and bristly.....Odonata
b. Antennae not short and bristly.....Hymenoptera
6. a. Head visible from above.....Mantodea
b. Head hidden from above by hooklike structure.....Blattaria



40 Use the dichotomous key to determine the correct classification of the insect in the diagram.

- A Diptera
- B Odonata
- C Hymenoptera
- D Mantodea

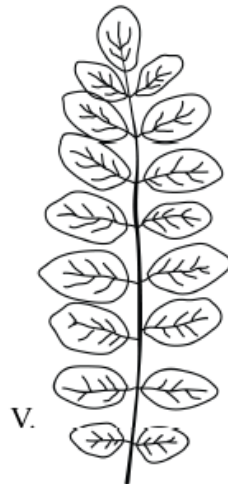
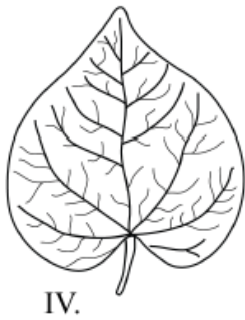
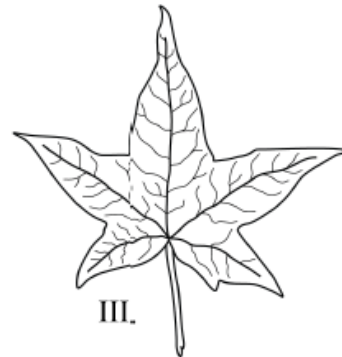
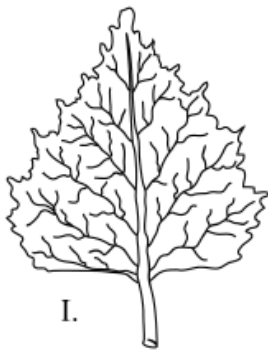
41 What is one characteristic used to classify the insect in the diagram?

- A number of legs
- B presence of antennae
- C number of wings
- D formation of larvae

USE THE FOLLOWING DICHOTOMOUS KEY TO ANSWER THE NEXT FOUR QUESTIONS.

Dichotomous Key for Leaf Classification

1. a. Compound leaf.....go to 2
- b. Simple leaf.....go to 4
2. a. Palmate arrangement of leaflets.....Aesculus
- b. Pinnate arrangement of leaflets.....go to 3
3. a. Leaflets taper to pointed tips.....Carya
- b. Oval leaflets with rounded tips.....Robinia
4. a. Leaf veins branch out from one central point.....go to 5
- b. Leaf veins branch off of main vein in the middle of the leaf.....go to 6
5. a. Leaf is heart-shaped.....Cercis
- b. Leaf is star-shaped.....Liquidambar
6. a. Leaf has jagged (toothed) margin.....Betula
- b. Leaf has smooth (untoothed) margin.....Magnolia



42 Which type of leaf margin does leaf “VI” have?

- A** smooth
- B** serrated
- C** undulated
- D** lobate

43 Use the dichotomous key to determine the correct classification of leaf “V”.

- A** Carya
- B** Aesculus
- C** Liquidambar
- D** Robinia

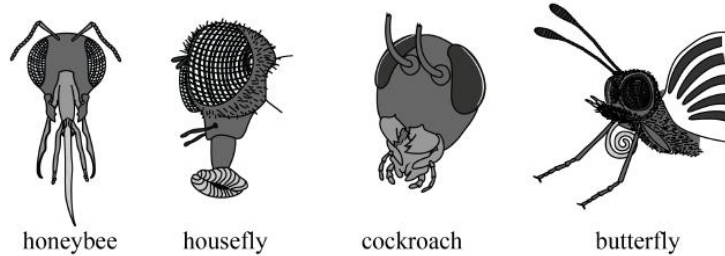
44 Observe the leaves in the diagram. Identify which leaf has the genus classification of *Betula*.

- A** I
- B** II
- C** IV
- D** V

45 Of the following pieces of laboratory equipment, which would best facilitate the external observation of a living leaf?

- A** collecting net
- B** electron microscope
- C** hand lens
- D** microscope

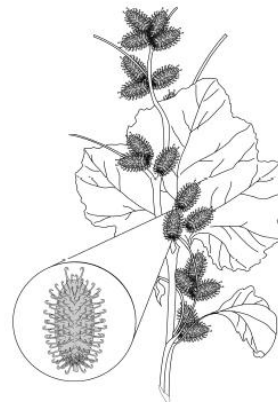
46 Study the diagrams showing mouthparts of four different insects. Which of the following could be a valid explanation for the differences in mouthparts among insects?



- A The insects each live in different climates, requiring a different type of feeding method.
- B The mouthparts have modifications that are adapted to the insect's method of feeding.
- C The mouthparts vary depending on the insect's wing to body length ratio.
- D The mouthparts are varied so that there is not competition within a single species of insect.

47 Plant species rely on various methods of seed dispersal. Which type of seed dispersal would most likely be used by the organism shown in the diagram?

- A animal dispersal
- B wind dispersal
- C water dispersal
- D gravity dispersal



48 The process by which organisms that are better adapted to their environment are more likely to survive and reproduce than other organisms of the same species is known as -

- A variation
- B the rule of extinction
- C mutualism
- D natural selection

49 Which of the following factors can affect the process of natural selection?

- I. **overproduction of offspring in a species**
- II. **competition among organisms of same species**
- III. **genetic variations within a population**
- IV. **niche necessity within a population**

- A I, II, and III
- B II only
- C I and III only
- D III and IV only

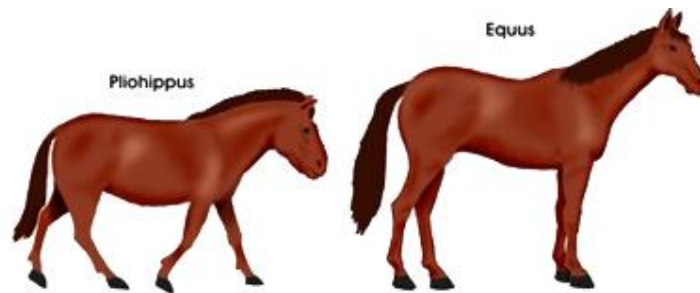
50 The Galapagos Islands are home to a variety of finches. Charles Darwin observed the finches on the island and noticed that each species was well-suited to the life it led. For example, finches that ate insects had sharp, slender beaks and finches that ate seeds had strong, wide beaks. Beak shape in these finches is an example of -



- A adaptation
- B simulation
- C competition
- D environmentalism

51 Most domesticated animals have been bred for specific, favorable traits. Dairy cows are bred for maximum milk production while dogs are bred for size and color, among other characteristics. The process of humans controlling the breeding of organisms is known as -

- A natural selection
- B selective breeding
- C manipulative reproduction
- D sheltered breeding



52 Drawings from hundreds of years ago show horses that are much smaller than horses today. Which of the following is the best explanation for the increased size of horses

- A Horses have been genetically engineered
- B Selective breeding has made horses larger
- C Genetic therapies have been used to make horses larger
- D certain sex-linked genes have been lost