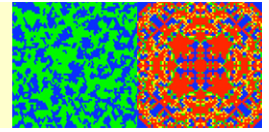


THE EVOLUTION OF COOPERATION



Group Activity: Evolutionary Trivia Prisoner's Dilemma

A

Name: _____

Objective: Working with a partner, try to maximize the number of points that you can earn on an evolutionary quiz.

How the Activity Works:

1. You and your partner have each been given a quiz on the principles of evolutionary biology (see the opposite side of this page). The quizzes you have are identical. In addition, each of you have been given a list of "Principles of Evolutionary Biology". These lists are different, and contain non-overlapping information on how evolution works.
2. Working simultaneously, you will have the opportunity to exchange information relevant to each question before separately and privately recording your own answer. After everyone has completed the quiz, we will grade it. If both players get the correct answer, they each earn six (6) points; if only one player gets the correct answer, that player earns ten (10) points. Wrong answers for either partner receive zero (0) points.

Instructions:

1. Before working with your partner, review the list of information that you have below under "Principles of Evolutionary Biology". DO NOT SHOW THIS INFORMATION TO YOUR PARTNER.
2. Once you and your partner have reviewed the information contained on your list, begin by reading the first quiz question together. Feel free to discuss each question and offer each other help, but work out your own means of discussion and information-sharing. Although you should read over the question together, you are not obligated to help each other in any particular way, nor do you need to record the same answer.
3. After you have discussed each question, each person should record an answer under the "My Answer" column on the opposite side of this page. DO NOT SHARE YOUR ANSWER WITH YOUR PARTNER.
4. Continue discussing each question until you have both completed the quiz. Notify your instructor when you are done.

Principles of Evolutionary Biology:

- ★ Evolution as a process depends on heritability: in order for a trait to change, it must be passed on from generation to generation. In addition, there needs to be variation in a trait in order for change to occur: if there is no variation in a population, it remains the same. Mutation is one source of novel variation.
- ★ Natural selection is a blanket term encompassing many different factors that can influence survival and reproductive success. These factors include predation of or by other individuals, competition with other individuals, choices made by potential mates, and elements of the abiotic environment.
- ★ The theory of evolution is actually a multi-faceted array of different mechanisms (including natural selection, genetic drift, speciation, and coevolution) which help explain why we see change in populations of organisms through time.
- ★ Evolutionary biologists spend a fair amount of time arguing about the details of how evolution occurs. However, there is very little controversy within the field of evolution about the overall validity of the theory.
- ★ Evolutionary fitness is defined by reproductive success. To have "high fitness" has nothing to do with physical condition or even survival: it is strictly a measure of how many offspring an individual produces in relation to other organisms.

