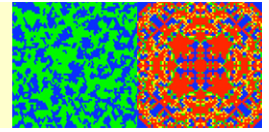


# THE EVOLUTION OF COOPERATION



## Group Activity: Evolutionary Trivia Prisoner's Dilemma

**B**

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:

- ★ Adaptations are traits (physical, physiological, behavioral) possessed by individual organisms which increase their probability of survival and reproduction. We can think of adaptations as the "product" of natural selection because those traits that survive the selection process are adaptive for the particular environment in which selection is occurring.
- ★ Historically, the process of evolution has been misrepresented for social and political purposes. For instance, the Nazis employed an idea called "eugenics", which was incorrectly portrayed as consistent with Darwin's theories. Evolutionary biology is about discovering natural processes, not ethical truths.
- ★ Genes are a critical component of the evolutionary process. Genes (the genotype) allow traits (the phenotype) to be passed on to offspring. Contrary to popular misconceptions, genes rarely encode for individual traits. Generally, multiple genes contribute to a particular trait, and interact with environmental factors to produce the actual trait possessed by an individual organism.
- ★ Evolutionary change occurs via reproduction. Those organisms with the traits that are best suited to survive and reproduce in their current environment will leave the most offspring, passing their favorable traits on to the next generation.
- ★ Speciation is a critical concept in evolution because it explains how inter-breeding populations can become distinct from each other. Some form of isolation is critical to the speciation process, for in order for one population to become two separate species, gene flow must be interrupted between these populations. Once isolated, separate populations can evolve independently, producing greater diversity of traits.

