Year 13 Science: Relationships within a species: territories, hierarchies, mating

Name: _____ Date: _____

Try these without your notes first, then check the answer key.

Practice

1. Tadpoles in a drying puddle all feed on the same algae until it runs out. Is this scramble or contest competition?

2. A helper raises 2 extra full siblings (r = 0.5), or could breed alone and raise 0.6 chicks. Use Hamilton's rule to decide whether helping is favoured.

3. Why do most red deer contests end in roaring and walking rather than antler fights?

4. A kekeno bull holds a beach territory where several females give birth and mate with him. Name the mating system.

5. State Hamilton's rule and say what each letter stands for.

Exam-style question: kākāpō leks

Kākāpō breed only in years when rimu trees fruit heavily. In those summers males walk to ridgetops, each clears a track-and-bowl system, and booms from its bowl for up to eight hours a night for three to four months. Females travel several kilometres to the lek, mate with one male and raise the chicks alone.

6. Describe what a lek is and identify the mating system shown.

7. Explain how booming leads to a female choosing a male.

8. Discuss why lek mating gives an advantage to the females and to the successful males, compared with males that do not display.

Fix the mistake

9. Correct this statement: "Helpers raise their siblings for the good of the species."

10. Correct this statement: "Low-ranked animals gain nothing from a hierarchy."

11. Correct this statement: "A territory is wherever an animal lives and feeds."

12. Correct this statement: "The kākāpō male booms so that it attracts a female."