

# Trial/Pilot Event

Contact the organizers of your tournament to find out what trial/pilot events will be held.

**BIRDS AND BEES - Trial** (6/13/02)

**DESCRIPTION:** The focus of this event is to test the understanding of processes that are involved in animal reproduction with emphasis on the human.

**A TEAM OF UP TO: 2**

**APPROXIMATE TIME:** 50 minutes

**EVENT PARAMETERS:** No notes or electronic devices will be permitted.

**THE COMPETITION:** The format of the event is a timed, station based test involving up to 25 stations with a 2 minute time limit per station. The questions at each station will involve identification of structures from pictures, diagrams, or three dimensional models, factual recall of definitions and being able to contrast and separate related functions or processes. Answers will be short answer essays. No multiple choice questions will be used.

Topics for the event will include the following: How cells divide using mitosis, meiosis and cytokinesis in animals such as human, protozoa, sea urchin, and *Ascaris* sp. Parthenogenesis and related nonsexual forms of reproduction seen in various animal groups. The levels of sex determination in humans including Genetic/Chromosomal, Gonadal, Hormonal, Anatomical, and Gender ID. Definition of human chromosomal abnormalities such as X-,XXX, XXY, XYY, etc. Processes involved in gonadal differentiation including TDF, maleness glue, SR genetics, etc. Cellular and Organizational differences between micro and macro gametes and the male and female gonads. Understanding the mechanisms and differences between Spermatogenesis, Spermiogenesis, Oogenesis, and Folliculogenesis. Understanding the control of hormonal systems including imprinting of brains, pheromones, development of sexual ducts, hormone receptors and secondary messenger systems. Understanding the Anatomy and Physiology of the human reproductive system including the homology of the system components. Describe and explain the various reproductive cycles such as menarche, menopause, ovarian and menstrual cycles with the emphasis on the stages involved and the hormones used. Understanding the mechanisms involved in ovulation and fertilization in human and nonhuman species. Understanding the various types of new reproductive technologies such as artificial insemination, cloning, GIFT, and ZIFT, Trans-species research, etc. An understanding of the incidence, causes and prevention of major sexually transmitted diseases including but not limited to Gonorrhea, Syphilis, HIV/AIDS, Herpes, etc.

## **SAMPLE PROBLEMS:**

1. During what stage of mitosis does the centromere split? What is the major difference between the G1 and G2 phases of interphase?
2. Name the structure indicated by the pointer and what is its function.
3. How is fertilization of the egg accomplished in GIFT?
4. What specific cell is attacked by HIV?
5. Using the associated data graphs, what change is demonstrated on the rate of individuals considered HIV Positive?
6. What is parthenogenesis and give an example of an animal in which this occurs naturally?
7. Where does estrogen exert a feedback inhibition in its control mechanism?
8. How does a pheromone differ from a hormone?

**SCORING:** Each question will be of equal value. Incorrect spelling and grammar will limit the question to only half credit. A tie breaker question will be included.