

Unit 11

Biology of Sex and Gender

Description

Scientists are beginning to unravel the evolution of sex. Several genes have been identified that help determine what makes a human embryo develop female or male sexual anatomies. Recent findings have challenged scientific beliefs about the roles of anatomy, environment, and genetics in the determination of gender.

Menu of Unit Activities

Choose either Activity 1 or Activity 2:

Activity 1: 1 in 4000 (15 minutes)

A quick discussion and review of human gender determination and the causes of abnormalities.

Activity 2: Birds Do It, Bees Do It (15 minutes)

A quick discussion on the diverse mechanisms used by different organisms to generate sexes.

Choose either Activity 3 or Activity 4:

Activity 3: What About Meiosis? (15–30 minutes, depending on the experience of the participants)

Paper chromosomes are used to work through situations of X and Y chromosome pairing, segregation, and recombination.

Activity 4: What Are Our Roles? (30 minutes)

Situations for discussion or role-playing that involve an intersex infant or student.

Activity 5: Let's Call the Whole Thing Off (60 minutes)

Readings and simple tests on male-female differences in intellectual and motor skills.

Choose either Activity 6 or Activity 7:

Activity 6: Y? (15 minutes)

Discussion questions on the genetic implications of the XY sex-determination system.

Activity 7: You Be the Judge (15 minutes)

Discussion questions on gender testing for athletic events, and what determines true maleness and femaleness.

Before the Session

Facilitator: Copy and assemble the following activity materials. (See the Activities section in the Appendix of this guide for master copies of transparencies and handouts, plus Tips and Suggested Answers.)

Choose either Activity 1 or Activity 2:

Activity 1: 1 in 4000 requires:

- Tips and Suggested Answers

Activity 2: Birds Do It, Bees Do It requires:

- Tips and Suggested Answers

Choose either Activity 3 or Activity 4:

Activity 3: What About Meiosis? requires:

- One set of Paper Chromosomes per two people (master copy provided; to make a set, cut after copying, so that each chromosome is separate)
- One copy of the Instructions and Situations per two people (master copy provided)
- A box of small- to medium-sized paper clips
- A roll of tape
- Tips and Suggested Answers

Activity 4: What Are Our Roles? requires:

- One copy of the Situations and Discussion Topics per person (master copy provided)

Activity 5: Let's Call the Whole Thing Off requires:

- One copy each of the article excerpt, Tests, and Discussion Questions per person (master copy provided)
- A stopwatch, watch with second hand, or timer for each team of four
- A tennis ball or other small ball for each team of four
- A wastebasket or other target for each team of four

Choose either Activity 6 or Activity 7:

Activity 6: Y? requires:

- Optional: Paper Chromosomes (master copy provided in Activity 3)
- One copy of the Discussion Questions per person (master copy provided)
- Tips and Suggested Answers

Activity 7: You Be the Judge requires:

- One copy of the Discussion Questions per person (master copy provided)

Facilitator: Make sure that the room has these supplies:

- pens or pencils and paper
- VCR and TV
- overhead projector and markers
- black/white board with chalk or markers

Session Activities and Video

If you chose Activity 1: 1 in 4000 (15 minutes)

- Read the Setup and arrange into pairs.
- Spend about five minutes working in pairs to discuss gender determination and abnormalities.
Facilitator: If hints would help the pair discussions, give the categories into which you'll be putting the ideas during the group discussion (see Tips and Suggested Answers).
- As a group, discuss and categorize the ideas from the pair discussions. Compare the group's list with the list in Tips and Suggested Answers.

If you chose Activity 2: Birds Do It, Bees Do It (15 minutes)

- Read the Setup and arrange into pairs.
- Spend about five minutes working in pairs to discuss different mechanisms of gender determination.
Facilitator: If hints would help the pair discussions, give the categories into which you'll be putting the ideas during the group discussion (see Tips and Suggested Answers).
- As a group, discuss and categorize the ideas from the pair discussions. Compare the group's list with the list in Tips and Suggested Answers.

Video (30 minutes)

- Watch the Biology of Sex and Gender video.

If you chose Activity 3: What About Meiosis? (15–30 minutes)

- Read the Setup and arrange into pairs.
- Have each pair take one set of Paper Chromosomes and one copy of the Instructions and Situations.
- Have each pair take at least four paper clips and some tape.
- Spend two to five minutes working on each situation in pairs, working out the solution with the paper chromosomes.

Facilitator: If the group is experienced in using objects to represent chromosomes, skip the first few situations and begin with situation 2, 3, or 4. Make up the extra time in the session by doing an additional activity from the choices. For example, do both Activities 1 and 2, or both Activities 6 and 7.

- Compare the group's answers with those in Tips and Suggested Answers.

Session Activities and Video, cont'd.

If you chose Activity 4: What Are Our Roles? (30 minutes)

- Read the Setup and arrange into teams of three or four.
- Have each person take a set of the suggested topics.
- Spend about 20 minutes role-playing or discussing the topics.
- As a large group, discuss the fundamental issues that arose from the smaller discussions and role-playing.
- Variation: Divide the group into a few teams of two or three people, with the rest as the audience. All the teams are given the same situation, such as an intersex child being introduced to a classroom at grade 5. One team at a time does a short role-play about the situation while the rest of the teams are out of the room. After all the teams have done their role-play, discuss as a group what common issues came up and what different issues were addressed.
- Variation: Instead of role-playing, choose a situation to discuss. List all the individuals who would be affected, and explore all their possible responses.

Activity 5: Let's Call the Whole Thing Off (60 minutes)

- Read the Setup and arrange into teams of four. If possible, have two men and two women per team.
 - Have each person take a copy of the *Scientific American* article excerpt.
 - Spend 10 minutes reading the article.
 - Each team should take a stopwatch, and some pens or pencils and paper.
- Facilitator:** Have one person per team be in charge of administering and timing tests. Give this person four copies of the *first page only* of the Tests (Test 1).
- The person in charge of each team should distribute one copy of Test 1 to each person on the team, who will leave it face down until the timer starts.
 - Spend five minutes in teams, doing Test 1 and recording the results.

Facilitator: Give the person in charge of each team four copies of the *second page only* of the Tests (Test 2).

- The person in charge of each team should distribute one copy of Test 2 to each person on the team, who will leave it face down until the timer starts.
- Spend 5–10 minutes in teams, doing Test 2 and recording the results.

Facilitator: Give the person in charge of each team four copies of the *third page only* of the Tests (Test 3).

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Session Activities and Video, cont'd.

(Activity 5, continued)

- The person in charge of each team should distribute one copy of Test 3 to each person on the team, who will leave it face down until the timer starts.
- Spend 5–10 minutes in teams, doing Test 3 and recording the results.

Facilitator: While teams are doing Test 3, set up the balls and targets for Test 4.

- Spend 5–10 minutes in teams doing Test 4 and recording the results.
- Have each person take a copy of the Discussion Questions and spend 10 minutes as a group discussing them.

If you chose Activity 6: Y? (15 minutes)

- Read the Setup and pass out sets of paper Y chromosomes, if desired.
- Have each person take a copy of the Discussion Questions and talk about them as a group.
- See Tips and Suggested Answers for additional information.

If you chose Activity 7: You Be the Judge (15 minutes)

- Read the Setup and have each person take a copy of the Discussion Questions.
- Talk about the questions as a group.

Summary (5 minutes)

- If time permits, as a group or in pairs, define the major ideas or 'take home' lessons of this unit and its applications.

Notes
