



A PILOT DVD PROJECT

WHY THE Y?

WHAT MAKES A MALE?

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WHY THE Y?

Activity: What Makes a Male?

Time Frame: One hour

Materials List: Student and teacher copies of Tables 1 and 2 (see Black line Masters), 3 by 5 cards, markers for drawing symbols

Teacher Directions:

Part A: Differences between males and females.

- ❖ The teacher asks:
 - When a child is born, what is the first thing most people ask when they want a description of the baby?
 - What are the differences between males and females?
 - What does it mean to be a female?
 - What does it mean to be a male?
- ❖ After allowing for sufficient questioning and probing of the students, Table 1 is given to the class so that students can complete it as best they can.
- ❖ Additional questioning is elicited from the class concerning characteristics of males and females using Table 1 as a guide.
- ❖ The HHMI DVD is advanced to Lecture 1, Chapter 5, and then paused so that students can take notes on Table 1 using the information on the screen that shows the characteristics of males and females. Students are given enough time to complete Table 1.
- ❖ The HHMI DVD is restarted so that the students can view Lecture 1, Chapters 6 and 7.

Part B: A histogram of male/female testosterone levels

- ❖ The teacher asks the students the following:
 - What are hormones?
 - What is testosterone?
 - Would you expect to find male hormones in a woman?
 - Would you expect to find female hormones in a man?
 - Do you expect the hormone levels (amount of hormones present in the blood of males and females) to change as people age?
- ❖ After questioning the students and guiding them so that the level of the students' prior knowledge can be determined, ask the students to answer the Notes/Questions section of Table 2.
- ❖ Ask the students what they expect the levels of testosterone to be for males and females. Students are to use the symbols ● for male and ■ for female. Tell the students to place the male and female symbols exactly where they believe they should go on the line graph shown in Table 2.

- ❖ Students should also hypothesize, by drawing a line on the line graph in Table 2 using the male and female symbols, what they expect will happen to the male and female testosterone levels as people age.

Part C: Histogram whole class board activity

- ❖ Copy the histogram on the board from the Histogram Black Line Master. Make sure that the histogram is large enough so that the entire class can work on it.
- ❖ Give each student a male or female symbol cut from 3 by 5 cards with the age and hormone level data written on the back of it. You may make these in advance. Don't worry about giving each student one that corresponds to his/her own age or sex.
- ❖ Have each student place his/her individual data cutout on the board histogram in the exact place where each datum belongs.
- ❖ Locate Lecture 4, chapters 5 and 6 on the DVD and have the students watch the explanation of the histogram data.
- ❖ Have the students finish answering the questions on Figure 1.

Evaluation: Students will be evaluated on the completed work on Table 1 and Figure 1.

Web Connection: <http://www.hhmi.org/biointeractive/gendertest/gendertest.html>
<http://www.holidaylectures.org/>

Student Directions – Complete the following

Table 1: What are the characteristics of human males and females?

Characteristics	Male	Female
External genitalia		
Gonad		
Internal accessory structures		
Gametes		

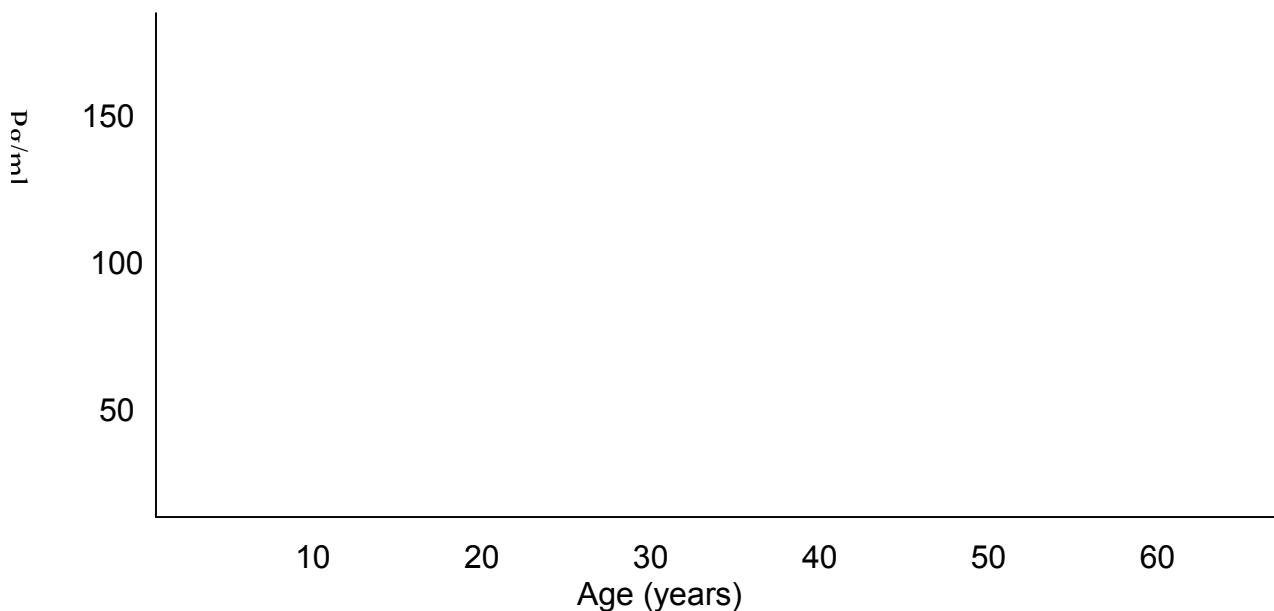
Part B: Hormone Levels

Answer the following questions on the back of this paper:

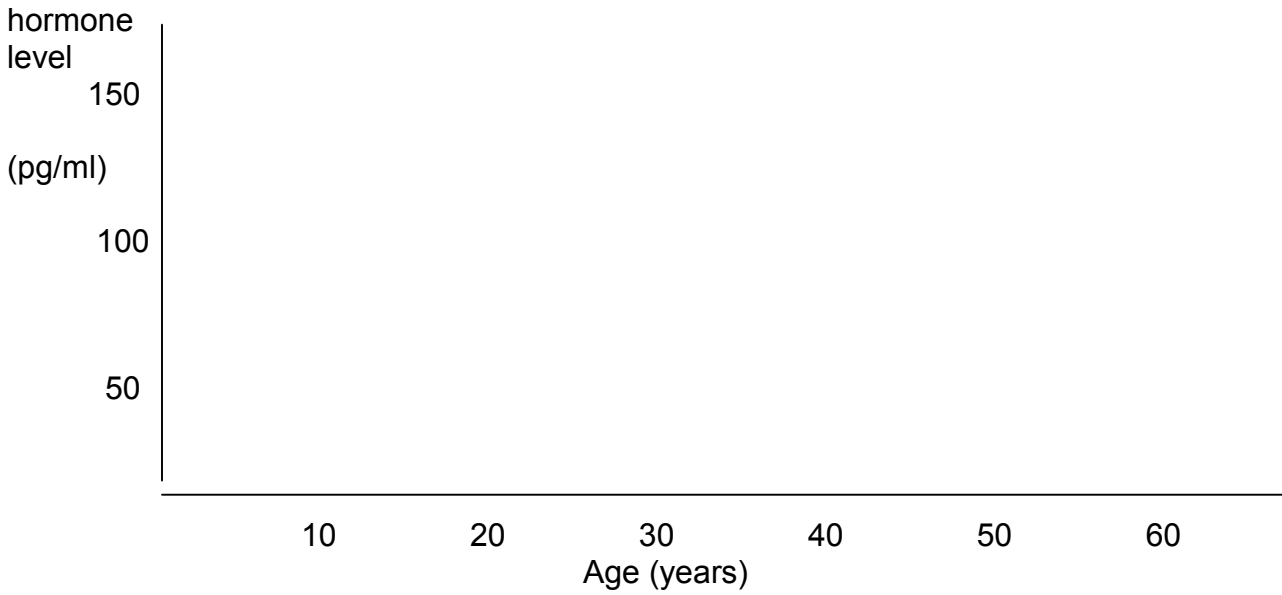
1. Define hormones.
2. What are the differences between male and female hormones?
3. Define testosterone.
4. Do you think you will find a difference in the amount of testosterone levels between males and females?
5. Do you expect the amount of testosterone to change as people age? How? Will the levels increase or decrease?

Figure 1

1. On Figure 1 below, place a ● for the male hormone level and a ■ for the female hormone levels you would expect to see in a person your age.
2. Starting from the ● and the ■, draw a line predicting the hormone levels for each sex as they age.
3. Answer only after viewing the video: How does the actual data (shown on the video) compare to the predictions that you made prior to viewing the video?



Black Line Master – Histogram



Data for Histogram (from HHMI video)

<i>Male</i>		<i>Female</i>	
<u>Age</u>	<u>pg/ml</u>	<u>Age</u>	<u>pg/ml</u>
14	150	14	135
14	120	14	90
14	100	14	40
14	70	14	30
14	60	14	12
		14	5
20	90	20	20
		20	10
28	100	28	20
28	80	28	10
28	60	28	5
		31	15
		31	10
		31	5
36	70	36	10
36	60	36	5
43	80	43	30
43	50	43	10
51	80	51	20
51	50		
56	50	56	10
		56	20
		56	5
60	80		
		62	20
		62	10
		62	5

