Name _____ Class _____ Period _____

14–2 How Do Male and Female Skeletons Differ?

A skeleton is found. A doctor reports to the police that it is an adult male skeleton. How could the doctor determine if the skeleton were from a male or a female?

Several differences exist between the skeleton of a male and that of a female. The main difference is in the shape of the pelvis. The female usually has a wider pelvis. Let's see how some measurements compare.

EXPLORATION

OBJECTIVES

In this exercise, you will:

1. examine and measure diagrams of a male and female pelvis.
2. determine how these measurements differ in male and female pelvises.
3. use your data to determine if a third pelvis is male or female.

KEYWORDS

Define the following keywords:

femur _____

pelvis _____

sacrum _____

skeleton _____

MATERIALS

metric ruler

PROCEDURE

1. Examine Figure 1. Figure 1a is the pelvis from an adult male. Figure 1b is the pelvis from an adult female.
2. Measure the length (in millimeters) of the following dashed lines on Figures 1a and 1b: lines *a*, *b*, *c*, and *d*.
3. Record these numbers in Table 1. Note that lines b and c are part of the sacrum bone (shaded). This bone is found at the back of the pelvis and does not block the pelvis opening. It does, however, appear to block the opening in the figures.

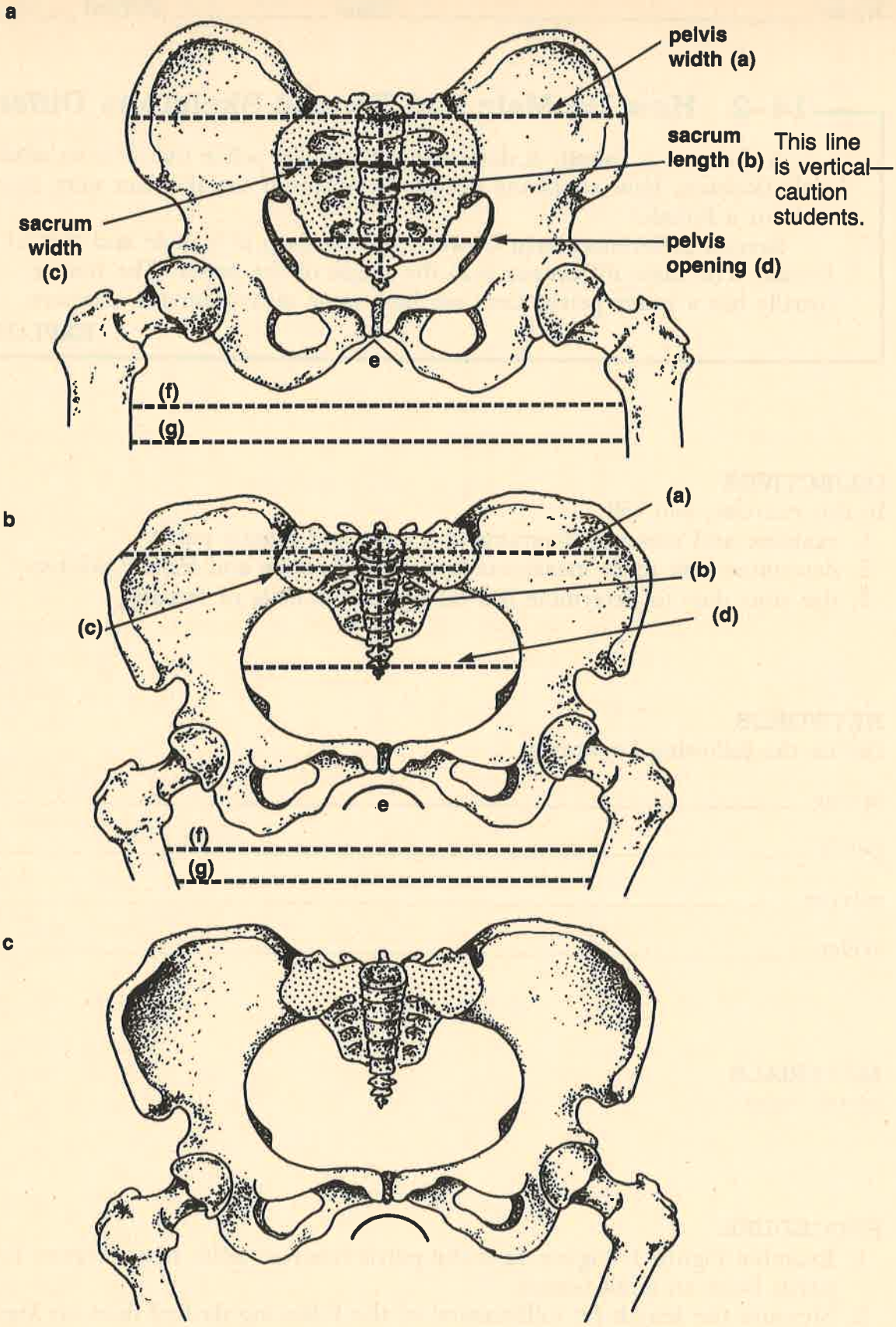

FIGURE 1. Human pelvises

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4. Locate letter *e* on Figures 1a and 1b. Note that the bottom of each pelvis is either round or pointed at this location. Record in Table 1 if the bottom is pointed or round.
5. Measure and record in Table 1 the lengths of dotted lines *f* and *g* on Figures 1a and 1b. If the femur bones hang *straight down*, the lengths of lines *f* and *g* will be the same. If the femur bones *slant inward*, the lengths of lines *f* and *g* will differ. This position of femur bones (thigh bones) provide a clue as to whether the skeleton is male or female.
6. Record your measurements and position of the femurs in Table 1.
   Note that now you have a way of telling male from female skeletons by using all the data in Table 1.
7. Measure and record all the lengths of the pelvis and femur parts in Figure 1c just as you did for Figures 1a and 1b. The dashed lines are not included in the figure. Record your data in Table 1.
8. Indicate in Table 1 if Figure 1c represents a male or female skeleton.

Table 1. Pelvic Bone Measurements

Figure	Sex	Pelvis width line a	Sacrum length line b	Sacrum width line c	Pelvis opening line d	Bottom shape	Line f	Line g	Position of femurs
1a	Male								
1b	Female								
1c									

QUESTIONS

1. Explain how each of the following differs in adult male and adult female skeletons:

   a. pelvis width _____

   b. sacrum _____

   c. pelvis opening width _____

   d. bottom shape of pelvis _____

   e. position of femur bones _____

2. Figure 1c is from a _____ (male or female.) List three things that helped you with your answer. _____

   _____

3. The approximate age of a skeleton can be told by measuring the length of the femur bone. The graph shown in Figure 4 gives you these measurements. By using this graph, determine the approximate age of a skeleton whose femur measures

   a. 200 millimeters._____

   b. 300 millimeters._____

   c. 350 millimeters._____

4. Explain why the graph in Figure 2 cannot be used to determine the age beyond 18 years._____

FIGURE 2. Age of human skeletons