

# A Forensic Mathematical Mystery

**Purpose:** The purpose of this activity is for students to understand how the skeleton relates to height in humans.

**Objective:** The students will use their knowledge of measuring and mathematics to determine the height of individuals when given only limited information.

**Materials:**

- Life-size plastic skeleton
- Tape measures for each group of students
- Worksheet on page 2

**Student Activity:**

You are an archeologist searching the tombs of an ancient African pyramid when you come across the remains of a human body. No clothing is found, however, a dagger is located among the few scattered bones and a coded map is scratched on a nearby pyramid wall. An old, deteriorated envelope is also found containing part of a note that reads “The name of the person who needs to die is...” After asking around the nearby town, you learn that the famous adventurer, Dr. Dean Divide and 4 others disappeared while exploring the pyramids and its tombs, decades ago. Nothing has ever been discovered until now. The only information you have been able to gather about the 5 missing persons follows:

Dr. Dean Divide

A short man, about 5 feet, 4 inches tall, famous in the region for his dangerous exploits.

Dr. Osteo Porosis

A six-foot tall lanky forensic anthropologist who often accompanied Dr. Divide on his adventures.

Pygmy Sam

A young student from Cambridge who longed to follow in Dr. Divide’s footsteps. He was very short, only about 5 feet, 2 inches tall. He was always able to crawl through small spaces.

Mr. Skull Bones

A popular expedition guide, about 5 feet 10 inches tall. His name came from the necklace of shrunken heads he always wore.

Ms. Heida Secret

A rich young girl from the States who often paid a high price for her adventures. She was once a model, measuring 5 feet, 8 inches.

The bones are brought back to the lab and you are charged with solving the crime. To find out who the victim is, you must measure the bone lengths and use the tables to determine the height of the victim and the victim's identity.

# Worksheet

Name \_\_\_\_\_

Record the length measurements of the following bones in millimeters (mm). Use the "Expected Human Height" table below to help you find the victim's height.

Humerus \_\_\_\_\_ mm                      Expected human height \_\_\_\_\_ inches

Ulna \_\_\_\_\_ mm                         Expected human height \_\_\_\_\_ inches

Femur \_\_\_\_\_ mm                        Expected human height \_\_\_\_\_ inches

Expected human height from long bone measurements:

Humerus (mm)	Ulna (mm)	Femur (mm)	Human Height (inches)
285	235	421	62
300	250	440	64
320	263	465	66
325	270	481	68
333	282	502	70
340	293	522	72

Convert height in inches to feet and inches for our victim \_\_\_\_\_.

Who was the victim? \_\_\_\_\_.