

**Subject: Science**

**Level: Standard 4**

**Strand: Individuals and groups**

**Topic: Explain the changes that take place as humans mature**

### **Key Points**

- As plants and animals mature, their parts grow in size
- Using humans as an example, growth can be shown as an increase in:
  - height (measures how tall, from base to top)
  - mass (measures the amount of matter or substance)
  - span (measures the amount that is covered by a structure)
  - girth (measures the width around the middle of something)

### **Practice Activity**

1. Sandra's teacher gave the students an assignment to measure and record the following for each member of their family:
  - height of person.
  - total body mass
  - span of hand: Open the hand as wide as possible. This is the distance from the tip of the thumb to the tip of the little finger.
  - girth or width around waist.
2. Before starting to collect the data, Sandra must first decide on the:
  - instruments to be used.
  - unit for each measurement.

3. If you were doing a similar assignment, record your decisions in TABLE 1 below:

**TABLE 1: Planning to measure**

MEASUREMENT	INSTRUMENT	UNIT
Height of person		
Total body mass		
Span of hand		
Girth around waist		

4. Sandra measured members of her family and recorded the data on Table 2 below. Give this table a title or name.

Write the title on the line next to TABLE 2.

**TABLE 2:** \_\_\_\_\_

NAME	AGE (Years)	HEIGHT (m)	MASS (kg)	SPAN OF HAND (cm)	GIRTH (cm)
Mimi	4	1.0	15	9	43
Sandra	8	1.2	26	13	60
Satesh	17	1.4	55	18	81
Nadira	40	1.6	68	22	96
Joe	43	1.8	77	25	98

5. Examine the data recorded in TABLE 2 and complete TABLE 3 below.

**TABLE 3: Changes of measurements with age**

<b>MEASUREMENT</b>	<b>PATTERN</b> (As age increases, does measurement increase or decrease?)
Height of person	
Total body mass	
Span of hand	
Girth around waist	

6. From the analysis of your data in TABLE 3, what can you conclude about the relationship between age and growth, amongst humans.

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## Answer Key

### Step 3:

**TABLE 1: Planning to collect data**

MEASUREMENT	INSTRUMENT	UNIT
Height of person	Ruler or measuring tape	Metre (m)
Total body mass	Balance	Kilograms (kg)
Span of hand	Ruler or measuring tape	Centimetre (cm)
Girth around waist	Measuring tape	Centimetre (cm)

### Step 4:

Title for TABLE 2: Measurements of persons of different ages.

**Step 5:****TABLE 3: Changes of measurements with age**

<b>MEASUREMENT</b>	<b>PATTERN</b>  (As age increases, does measurement increase or decrease?)
Height of person	Increases
Total body mass	Increases
Span of hand	Increases
Girth around waist	Increases

**Step 6**

In humans, growth occurs as a person changes from infant to adulthood. This is shown by a typical increase in height, body mass, span of the hand and girth.

(Variations in these patterns may occur due to persons being either over or under weight as they grow).