5.1 Pattern of Human Growth

- Growth in human is a process of change in physical shape, body size and cell function of the human.
- The rate of human growth is measured by the weight and height of their body.
- The graph below shows the human growth curve.

![Graph showing human growth curve with stages: Infancy, Childhood, Adolescence, Adulthood, Old age.](image1)

- It can be divided into five stages.
  (a) Infancy – rapid growth (0-3 years)
  (b) Childhood – slow growth (3-13 years)
  (c) Adolescence – rapid growth (13-20 years)
  (d) Adulthood – minimal growth (20-65 years)
  (e) Old age – negative growth (65 years and above)

- The graph below shows the growth curves of males and females.

![Graph showing growth curves for males and females with stages: 2-4 years, 4-10 years, 10-12 years, After 14 years.](image2)
(a) The growth rate at infant stage (0-2 years) is the greatest.
(b) The growth rate in males and females is almost the same from 0-12 years.
(c) From 12-14 years, the females grow at a higher rate than the males.
(d) From 14 years onwards, the males grow at a higher rate than the females.

- Effects of nutrition:
  (a) Balanced diet is necessary for the healthy growth.
  (b) The following table shows the nutrients and their respective functions.

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proteins</td>
<td>Build new tissues to replace old and worn-out tissues</td>
</tr>
<tr>
<td>Carbohydrates</td>
<td>Provide energy</td>
</tr>
<tr>
<td>Fats</td>
<td>Provide energy</td>
</tr>
<tr>
<td>Iron</td>
<td>Forms haemoglobin in red blood cell</td>
</tr>
<tr>
<td>Calcium, phosphorus and vitamin D</td>
<td>Form strong bones and teeth</td>
</tr>
<tr>
<td>Vitamins</td>
<td>Fight against infections</td>
</tr>
</tbody>
</table>