Exercise 1

1. Select the food you might eat in one day and place it on the food grid. Fill in the table below with the food you chose. Add up the total amount of energy.

(Choose foods that closely match what you might actually eat)

*Think about breakfast, lunch, and dinner, as well as snacks.*

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of squares on grid</th>
<th>Amount of Energy (kJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>E.g.</em> Cornflakes</td>
<td>7</td>
<td>700</td>
</tr>
</tbody>
</table>

Your challenge is to compare the energy you get from your food in one day with the energy you use when doing different activities.

Does your energy **input** match your energy **output**?
Exercise 2

2. Now select the activities you might do in one day. Put them on the activity grid and fill in the table as before.

(Choose activities that closely match what you might actually do)
All your activities should take about 24 hours when you add them up.

<table>
<thead>
<tr>
<th>Food</th>
<th>Number of squares on grid</th>
<th>Amount of Energy (kJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.g. Running</td>
<td>8</td>
<td>800</td>
</tr>
</tbody>
</table>

3 a) Which food (from Exercise 1) contained the most energy?

_______________________________________________________________________

b) What type of activity (from Exercise 2) used the most energy?

_______________________________________________________________________

4 a) Complete the table using the information from Exercise 1 and Exercise 2.

<table>
<thead>
<tr>
<th>Total Energy Input (kJ)</th>
<th>Total Energy Output (kJ)</th>
<th>Energy Difference (kJ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>A - B</td>
</tr>
</tbody>
</table>
All your cells, organs etc are still respiring/ require energy to keep alive.

People have different metabolic rates.

Energy used depends upon size/ weight/ gender of person/ intensity of exercise.

Different times for each activities

Energy used depends upon size/ weight/ gender of person/ intensity of exercise.

People have different metabolic rates.

5. Exercise 1 and 2 model the way in which our bodies use energy. Can you suggest some ways in which the model could be made more accurate? e.g. Portion of food might be larger or smaller depending on the person.

6. Why does your body still use energy when you are asleep?

7. Respiration

- Food is used to provide energy for all the cells in our body
- Cells use glucose from food and release the energy in a process called respiration.
- This reaction also uses oxygen, and produces carbon dioxide and water.

Complete the word equation below, using the words in bold above.

\[ \text{Glucose} + \text{________} \rightarrow \text{________} + \text{________} + \text{ENERGY} \]

\[ \text{oxygen} \quad \text{carbon dioxide} \quad \text{water} \]

b) Does the energy input from the food you have selected balance the energy output from the activities?

Tick the box that agrees with your energy difference:

- Energy input greater is greater than energy output
- Energy input is balanced (or nearly balanced)
- Energy output is greater than input

c) Explain what would happen to your body if:

- Your energy input is greater than your energy output?
  - Put on weight

- Your energy input and output are balanced?
  - Weight stays the same

- Your energy output is greater than your energy input?
  - Lose weight/ tired/ inactive