In this activity pupils have the opportunity to discover the important point that a larger parcel can be lighter than a smaller parcel. This consolidates their understanding that size and weight are independent attributes. Many pupils require rich and varied practical experiences to disassociate weight from size and to discover that small objects can be heavy and large objects light.

1. Three or more parcels are prepared which are similar in size but of different weight. Pupils put the parcels in order by handling and use the balance to verify their findings.

2. A variation involves using parcels of different size, where size is related to weight, for example a small light parcel and a large heavy parcel. Allow pupils to again describe the parcels, handle the parcels and order the parcels from heaviest to lightest. Pupils could use the balance to investigate and compare this set with the first set.

3. Finally select a group of parcels where weight is not related to size, for example a small heavy parcel, a medium light parcel, a large light parcel. Allow pupils to select ways of ordering the parcels. Pupils could record their ways of ordering the parcels on paper or by taking a photo, to facilitate visualisation and further discussion.

Possible extension: Investigate the full set of parcels using the balance. Non-standard units such as lollipop sticks could be used to enable pupils make further conclusions. For example, the small blue box can be balanced with 8 lollipop sticks and the big yellow box can also be balanced with 8 lollipop sticks.

Teacher Observation, Teacher-designed task, Teacher Questioning, Samples of pupils’ work, Photos of pupils’ sorting
Mathematical Skills: Understanding & Recalling, Implementing, Applying & Problem-Solving, Communicating & Expressing, Integrating & Connecting, Reasoning

Bungee

Level B.1. Estimate, compare, measure and record weight using non-standard units and deepen understanding of conservation of weight

The purpose of this activity is to create a visual record of how items compare, in terms of weight. Use a simple piece of elastic as a bungee and measure how far the elastic stretches to compare the weight of different objects. Pupils could record the ‘stretch’ of the elastic on a page behind the bungee.

Set up a bungee by tying a piece of elastic onto a clothes peg/bull clip. The top of the bungee will need to be attached to something it can hang from, a metre ruler or counting stick suspended across two desks would be ideal. Placing a piece of paper behind the bungee, will enable pupils to mark how far down the object causes the bungee to extend. This record on paper will allow them compare various items later on. Have pupils take one object at a time and attach it to the bull clip. They then let the objects go, wait till the elastic comes to rest and mark on the paper how far down the object falls. Pupils repeat for a selection of objects, first predicting, then investigating how far the elastic will stretch.

Possible items to investigate: Full Pencil case, ruler, copy large light book, small heavy book etc.

Mathematical Skills: Understanding & Recalling, Implementing, Applying & Problem-Solving, Communicating & Expressing, Integrating & Connecting, Reasoning

1 http://pbskids.org/cyberchase/math-games/poddle-weigh-in/
Level C.1. Estimate, compare, measure and record the weight of a wide variety of objects using appropriate metric units (kg, g) and select suitable instruments of measurement.

A selection of parcels, envelopes, postcards and packages could be used for this activity. First estimate then measure the weight of different items to be posted on the digital scales.

Choose one of the items to work with. What do you notice about it? What do you wonder? Estimate its weight. Record your estimate. Give a reason for your estimate. Use the scales to weigh the item. Record the weight. Compare your estimate with the actual weight. How close were you? Use the table to work out how much it would cost to post the item.

### PostalRateTable

<table>
<thead>
<tr>
<th>Weight Not Over</th>
<th>Letter / Postcard</th>
<th>Large Envelope</th>
<th>Packet</th>
<th>Parcel</th>
</tr>
</thead>
<tbody>
<tr>
<td>100g</td>
<td>€0.70</td>
<td>€1.25</td>
<td>€2.80</td>
<td>€7.00</td>
</tr>
<tr>
<td>250g</td>
<td>€1.70</td>
<td>€3.50</td>
<td>€7.00</td>
<td></td>
</tr>
<tr>
<td>500g</td>
<td>€2.30</td>
<td>€4.50</td>
<td>€7.00</td>
<td></td>
</tr>
<tr>
<td>1kg</td>
<td>€7.00</td>
<td>€7.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5kg</td>
<td></td>
<td>€8.25</td>
<td>€8.25</td>
<td></td>
</tr>
<tr>
<td>2kg</td>
<td></td>
<td>€8.25</td>
<td>€8.25</td>
<td></td>
</tr>
</tbody>
</table>

Mathematical Skills: Understanding & Recalling, Implementing, Applying & Problem-Solving, Communicating & Expressing, Integrating & Connecting, Reasoning

Investigating Food Packaging

Level D.2 Rename units of weight in kg and g and decimal or fraction form

The purpose of this activity is to develop pupil’s critical thinking skills and enable pupils to become competent when shopping for groceries. Identifying the weight of a product and its food content raises awareness of the need to be able to distinguish between value and price when purchasing food items.

What do you notice about the cans? Are there measurements on the labels? What do you think gross weight and net weight mean? Do you think the can will weigh that amount when you place it on a scales? Could you measure the weight of the contents? How?

Investigate: What can is the best value? What is the relationship between the name of food on the can and the content of that food in the can?

Could you record your findings in a way that would convince others?

Possible Extension: Sausages produced in Ireland receive a quality assurance mark from Bord Bia if they have a meat content of 70% or over. Pupils could investigate a variety of packets of sausages to identify what sausage is the best value.

Conferencing, Teacher Observation, Self-reflection, Samples of pupils’ work, pupil responses and reasoning evident, Teacher Questioning

Mathematical Skills: Understanding & Recalling, Implementing, Applying & Problem-Solving, Communicating & Expressing, Integrating & Connecting, Reasoning

1 https://nces.ed.gov/nceskids/createagraph/
Weight Cards

Level D.2 Rename units of weight in kg and g and decimal or fraction form

1. Take a look at the loose weight cards. What do you notice? Share what your observation with the group. Can you and your group create a way to sort the cards? Can you order the cards in more than one way?

2. Stick the cards to the Target Board Template

   Which weights are more than 1kg? Which weights are less than 500g? What pair could make exactly 2Kg? The sum of which column has the greatest weight? The sum of which row has the least weight? Convert three of the weights to fractions of 1Kg.

Use the post-it to create a question for the target board

   I wonder...

If you had to investigate any of these questions which would you choose? How could you convince a friend of your answer?

Possible Extension: Find these measurements in the environment in school or at home. Draw a picture or take a photo of an item that has this weight. (Place the picture beside the target board during the week.)

Teacher Observation, Maths Journal, Conferencing, Teacher Questioning, Pupil questions

Mathematical Skills: Understanding & Recalling, Implementing, Applying & Problem-Solving, Communicating & Expressing, Integrating & Connecting, Reasoning
<table>
<thead>
<tr>
<th>Weight Cards</th>
<th>750g</th>
<th>1 gramme</th>
<th>Five thousand grammes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>875g</td>
<td>100g</td>
<td>125g</td>
</tr>
<tr>
<td></td>
<td>1.5 Kg</td>
<td>0.25Kg</td>
<td>500g</td>
</tr>
</tbody>
</table>