Weight and Mass: Comparing Mass

Aim: Compare, describe and solve practical problems for mass/weight. To compare mass.	**Success Criteria:** I can identify which object is heavier. I can identify which object is lighter. I can use accurate vocabulary to describe and compare mass. I can order objects according to their mass.	**Resources:** Lesson Pack Balance scales – one per pair Cubes to use as measuring units e.g. wooden blocks or interlocking cubes. Small toys with a mass of up to ten cubes
	Key/New Words: Heavy, heavier, heaviest, light, lighter, lightest, the same mass, equal to, balanced, balance, estimate, measure, weight, mass, compare, describe, explain.	**Preparation:** Some parts of the presentation will require practical demonstrations to show objects that are heavier, lighter, or have the same mass. For these, you will need balance scales, cubes to use as measuring units and toys with a mass of up to ten cubes. Comparing Mass Activity Sheets – one per child Diving into Mastery Activity Cards – as required

Prior Learning:	It will be helpful if children are familiar with the language of comparing, describing and measuring mass. The lesson pack Measuring Mass will support this learning.

Learning Sequence

	**Remember It:** The Lesson Presentation shows balance scales with toys balanced using non-standard units. Ask the children what this tells us about the mass of the toys. Invite them to explain how they know. Complete sentences together to describe the mass: The _ has a mass of _.	
	**Heaviest:** The Lesson Presentation shows two balance scales, each with a toy balanced with a different number of non-standard units. Invite the children to identify the heaviest toys and to explain why. Complete sentences to compare the mass: 'The _ has a mass of _ . The _ has a mass of _ . The _ is heavier than the _ . The _ is the heaviest.' After using the example on the Lesson Presentation, use a real balance scale and blocks to compare the mass of two toys. Ask the children to count the cubes as they are placed in the balance scale and to tell you to stop when they show the same mass as the toy. Repeat with the other toy. Ask the children which toy is the heaviest and to explain how they know. Can children identify which object is heavier?	
	**Lightest:** The Lesson Presentation shows two balance scales, each with a toy balanced with a different number of non-standard units. This time, invite the children to identify the lightest toys and to explain why. Children complete sentences to compare the mass as in the previous section. After using the example on the Lesson Presentation, use a balance scale and blocks to compare the mass of two toys as in the previous section. Can children identify which object is lighter?	
	**Describing Mass:** The Lesson Presentation shows two balance scales, each with a toy balanced with a different number of non-standard units. Ask the children to describe and compare the mass of the toys using these words to help them; mass, heavier, lighter, heaviest and lightest. Can children use accurate vocabulary to describe and compare mass?	
	**Equal Mass:** The Lesson Presentation shows three balance scales, each with a toy and set of non-standard units. Ask the children which two toys have an equal mass and explain how they know. Once an answer has been agreed, say the sentence together: 'The _ and _ have an equal mass.' After using the example on the Lesson Presentation, use a balance scale and blocks to compare the mass of three toys. Ask the children to count the cubes as they are placed in the balance scale and to tell you to stop when they show the same mass as the toy. Repeat with the other toy. Ask the children if they have an equal mass and to explain how they know.	
	**Ordering Mass:** The Lesson Presentation shows three sets of balance scales, each with a toy and a set of non-standard units. Ask the children how we could put these in order from the lightest to the heaviest. The slide then reveals the mass of each toy and orders them. The next slide then asks children how to measure the same toys from the heaviest to the lightest. The Lesson Presentation then shows different toys with their mass given in a table. Invite the children to explain how these can be placed in order from the lightest to the heaviest, and then heaviest to lightest. After using the example on the Lesson Presentation, use a balance scale and blocks to compare the mass of three toys. Can children order objects according to their mass?	

Comparing Mass: The children complete the differentiated Comparing Mass Activity Sheets.

Children compare the mass of two toys measured with cubes in balance scales. They complete sentences to identify which toy is heavier and which is lighter. Children then order three toys labelled with their mass in cubes from the lightest to the heaviest.

Finally, children are invited to choose three toys and find their mass by using cubes and balance scales. Children order the toys from the heaviest to the lightest.

Children compare the mass of three toys labelled with their mass measured with cubes. They complete sentences comparing the mass of one toy with the others, using the terms 'heavier' and 'lighter'. Children then look at a table showing three toys and their mass measured in cubes. They order these from the lightest to the heaviest.

Finally, children are invited to choose four toys and find their mass by using cubes and balance scales. Children order the toys from the heaviest to the lightest. They pick two of the toys and complete a sentence comparing their mass.

Children compare the mass of four toys labelled with their mass measured with cubes. They complete an extended sentence comparing one toy with the others, using the terms 'heavier' and 'lighter'. Children then look at a table showing four toys and their mass measured in cubes. They order these from the lightest to the heaviest.

Finally, children are invited to choose four toys and find their mass by using cubes and balance scales. Children order the toys from the heaviest to the lightest. They then pick a toy and write facts about its mass.

Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Children use the terms 'heavier' and 'lighter' to compare and describe mass. They then order toys, with their masses given in a table, from heaviest to lightest. They then order four objects from lightest to heaviest using balance scales and cubes.

Children decide if statements about the mass of toys are true or false, explaining how they know. They then order the toys from lightest to heaviest, explaining where a new toy would go in the sequence. They then complete statements about the toys.

Children order four toys, with their masses given in a table, from lightest to heaviest. They then suggest what the mass of another toy in the sequence could be, explaining how they know. They add two new toys to the sequence, working out the mass of each. They then complete statements about the toys.

Check It: The Lesson Presentation shows different scenarios for the children to check. The first shows the mass of toys measured in different units. Invite the children to compare the mass and discuss any challenges that this would present. Ask the children what we can learn from this (to use the same non-standard unit when comparing measurements). The next slide shows two toys placed in order from lightest to heaviest. Finally, ask the children where they think the third toy should be placed.

Exploreit

Findit: Children take turns to challenge each other to find an object heavier or lighter than the object they have.

Orderit: Children use non-standard units and balance scales to find the mass of different objects. They choose a way to order the mass (lightest to heaviest or heaviest to lightest). Each time the mass of a new object is measured, children work out where to place it in the sequence.