LESSON MAKER PRO

Mass Matters

Estimate, convert, add, and subtract grams and kilograms.

GRADE 5 · 5.MG.1.b.ii

5.MG.1.b.ii "Estimate and measure to solve contextual problems that involve metric units: mass (grams and kilograms); and"

NAME _____ DATE _____

GRAMS AND KILOGRAMS

Use kilograms for heavier objects and grams for lighter objects. Remember that 1 kg = 1,000 g, so change kilograms to grams when needed, then regroup 1,000 g as 1 kg.

WORKED EXAMPLE

A library cart holds 9 kg 375 g of books. Another box holds 3 kg 125 g. What is their total mass?

1. Add the kilograms: 9 kg + 3 kg = 12 kg.
2. Add the grams: 375 g + 125 g = 500 g.
3. Combine the amounts: 12 kg 500 g.

Answer: 12 kg 500 g

PRACTICE 6 problems

1 A full water bottle has a mass closer to 1 g or 1 kg?

ANSWER _____

2 Change 8 kg to grams.

ANSWER _____

3 Change 6,240 g to kilograms and grams.

ANSWER _____

4 A bag of pet food has a mass of 5 kg 650 g. A second bag has a mass of 800 g. What is the total mass?

ANSWER _____

5 A box has a mass of 8 kg 200 g. After 950 g is removed, what is the mass of the box and what is left inside?

ANSWER _____

_____

6 Each of 4 snack bags has a mass of 275 g. Estimate the total mass, then find the exact total mass.

ANSWER _____

_____

APPLY IT Show your work

1 For a robotics project, Maya has a battery pack with a mass of 4 kg 650 g and a parts case with a mass of 1 kg 775 g. Round each mass to the nearest kilogram to estimate the total. Then find the exact total mass.

WORK SPACE

ANSWER _____

2 A sports equipment cart has a mass of 7 kg 200 g. After a student takes out 2 kg 850 g of equipment, what is the mass of the cart and equipment left? Estimate first by rounding each mass to the nearest kilogram.

WORK SPACE

ANSWER _____

3 Actual weighing task: Your teacher provides a scale marked in grams and a sealed pencil case within its capacity. Estimate its mass in grams. With the empty platform at zero, place the case on the scale and record the observed mass in grams. A packing box adds 100 g. Find the total packed mass in grams, then kilograms and grams. Compare your measured mass with your estimate.

WORK SPACE

ANSWER _____

CHALLENGE One step up

The art club has 4 packs of clay, each with a mass of 750 g. A storage tub has a mass of 1 kg 300 g. What is the total mass? Explain how you regrouped grams into kilograms.

WORK SPACE AND ANSWER

ANSWER KEY # Mass Matters

GRADE 5 · 5.MG.1.b.ii

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	A full water bottle has a mass closer to 1 g or 1 kg?	**1 kg**
2	Change 8 kg to grams.	**8,000 g**
3	Change 6,240 g to kilograms and grams.	**6 kg 240 g**
4	A bag of pet food has a mass of 5 kg 650 g. A second bag has a mass of 800 g. What is the total mass?	**6 kg 450 g**
5	A box has a mass of 8 kg 200 g. After 950 g is removed, what is the mass of the box and what is left inside?	**7 kg 250 g**
6	Each of 4 snack bags has a mass of 275 g. Estimate the total mass, then find the exact total mass.	**About 1 kg; exact mass: 1 kg 100 g**

PART 2 · APPLY IT

1. **Estimate: 7 kg. Exact mass: 6 kg 425 g.** Round 4 kg 650 g to 5 kg and 1 kg 775 g to 2 kg for an estimate of 7 kg. Add the measured masses to get 6 kg 425 g.
2. **Estimate: 4 kg. Exact mass: 4 kg 350 g.** Round 7 kg 200 g to 7 kg and 2 kg 850 g to 3 kg, so the estimate is 4 kg. Regroup 7 kg 200 g as 6 kg 1,200 g, then subtract 2 kg 850 g.
3. **Answers depend on the measured case. If its mass is m grams, the packed mass is m + 100 grams. Regroup each 1,000 g as 1 kg.** Observe the learner zeroing and using the scale with teacher support. Check the recorded value against the display and the scale precision. Example only: a measured mass of 350 g gives 450 g, or 0 kg 450 g. Accept equivalent correct forms; require actual measured input.

CHALLENGE

4 kg 300 g. The 4 clay packs have a mass of 3,000 g, or 3 kg. Then 3 kg + 1 kg 300 g = 4 kg 300 g.

Accept equivalent mass forms when they are correct, such as 6,450 g for 6 kg 450 g. For estimates, accept reasonable answers only when the student follows the rounding direction given in the problem. Apply 3 requires an actual safe measurement using the supplied scale. Check zero, the observed value and units, addition of the 100 g box, regrouping and comparison with the estimate.